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CRANIO-CEREBRAL INJURIES*

HARRY WILKINS, M.D., F.A.C.S.

OKLAHOMA CITY

The prevalence of head injuries today again warrants the consideration of the members of the surgical section for a few minutes of the time allotted to the surgery of trauma. Our present methods of rapid transit and the character of our industrial works to me seem the most important factors contributing to such injuries. It is therefore evident that trauma of this type is apt to occur wherever one may be, whether in an isolated district away from hospitals or in the more thickly populated districts where every means of medical treatment that is known may be made available to the patient. It is with the foregoing facts in mind that I have the temerity to discuss this subject just two years after that excellent and detailed paper was presented to this body by Dr. Loyal Davis of Chicago.

Trauma to the head in addition to the necessity of care as of injuries elsewhere in the body, requires certain special considerations because of the anatomy of the structures involved. We are dealing with a vital organ, the brain, encased in a rigid structure, the skull, and supplied with nourishment, fluids and oxygen by way of the blood stream entering through the arteries at the base or in the basalar region. Whereas trauma to any portion of the body is followed by extravasation of blood into the tissues and subsequent edema, special attention to these conditions is necessary in dealing with injuries to the brain. Swelling of the brain, encased as it is by a rigid covering, produces pressure which results in disturbed circulation sometimes reaching a degree that is incompatible with life. The organic matter within the skull making up the brain, the vessel walls, cranial nerves and membranes is a fixed volume. Fluid both interstitial and in the ventricles and subarachnoid spaces is variable in quantity. Likewise the circulating blood is variable in amount. It has been pointed out by Fay that with an increase in interstitial fluid, that is cerebral edema, the other variable, the circulating blood, is decreased. Obviously an anoxemia accompanying such a condition not only causes widespread damage but may reach a state where death ensues. Our special efforts then must be directed toward prevention of and relief from anoxemia due to cerebral compression.

The brain is a semi-solid media capable of undergoing considerable deformity without damage of an appreciable degree. When this point has been passed damage to the brain results and subsequent changes occur depending on the amount of damage.

Nature has provided an excellent covering consisting, from the surface inward, of the scalp, the pericranium, the skull, the dura and the lesser meninges. Naturally any one or all of these may or may not be damaged from an injury that does irreparable damage to the brain. The reverse is also true and interruption of continuity of the covering may occur without appreciable damage to the brain.

In being called to see the patient suffering from a cranio-cerebral injury I feel that it is our primary duty to consider the

*Read before the Surgical Section, Annual Meeting, Oklahoma State Medical Association, Enid, April 7, 1936.

organism as a whole. We should then attempt to meet the requirements of the organism rather than confine our attentions to a single organ or structure such as the head. Emergency treatment then consists of rapidly summing up the general condition of the patient to better enable us to apply a more rational therapy. Move the patient as little as possible. Of course the patient should be moved to a protected place, either the home or hospital, but should not be transported long distances in the initial stage of the post-traumatic state. Following this, measures to combat shock are put into effect. These will vary with the situation confronting us but usually the measures to combat post-operative shock or shock produced by injury to other structures are applicable with one exception; that is regarding the use of morphine which will be discussed later. External heat, stimulants, particularly caffeine—sodium benzoate, fluids intravenously and subcutaneously are to be given when required. Open wounds should have a sterile dressing to aid in controlling hemorrhage and measures to dehydrate the patient are to be postponed until after recovery from shock. Temporary care of fractures in the extremities is warranted only in so far as found necessary in preventing increase in shock. Obviously with few exceptions, x-rays of the skull should be put off until later.

With these things having been done, a more careful neurological examination should be made. This enables one to estimate the amount of cerebral damage and serves as a basis for subsequent management. In this period observation should begin relative to the presence of massive hemorrhage causing compression, subarachnoid hemorrhage producing irritation of the meninges, or edema which in itself may cause compression to the degree that death ensues.

The phenomena of a rapid-rise in intracranial pressure is fairly characteristic. The systolic blood pressure increases and the diastolic increases but to a lesser degree, causing an increase in pulse pressure. A progressive slowing of the pulse with subsequent loss of consciousness and finally impaired use of one half of the body or pathological motor pathway signs completes the picture. This condition is a result of rapid massive bleeding as from the middle meningeal artery that will result in a fatality from compression if the clot is not removed. Of course this necessitates an operative procedure as an emergency measure.

In the second phase of care x-ray plates may be made, lacerations of the scalp closed and fractures of the long bones should be reduced. Tetanus anti-toxin may be given and measures to prevent increasing intra-cranial pressure from cerebral edema should be instituted.

Most of the operative procedures necessary in the treatment of injuries to the head are carried out in the early part of this second phase. Lacerations of the scalp, even though small, warrant careful cleansing of the surrounding scalp by shaving and scrubbing with soap and water. Alcohol is in my opinion the best antiseptic to use in the wound. Chemicals of more caustic type interfere with healing. Closure of the lacerations in layers without drainage should be carefully attended to only after complete debridement.

More extensive damage to the covering of the brain may be handled in the same way but with preparation for a more extensive operative procedure. Bone fragments are elevated to permit debridement of wounds to the brain, control of hemorrhage and careful and complete closure of the dura by direct suture or by fascial transplant. Bone fragments are then replaced if they can be thoroughly cleaned with soap, water, saline and alcohol. The scalp is then closed as for simple laceration.

Massive hemorrhage as from rupture of the middle meningeal artery, or an acute massive subarachnoid or subdural hemorrhage is handled only by evacuation of the clot and control of the bleeding point. These are usually adequately handled through a classical subtemporal decompression opening. The more frequent but less rapid in occurrence is the subdural hematoma. Its symptoms are insiduous in development, rarely showing changes of blood pressure or pulse, but may cause pupillary inequality and slightly xanthochromic spinal fluid, all following a more or less trivial injury. It is not infrequent that the condition persists from several

weeks even to a few months before symptoms reach a degree to warrant surgical consideration.

The final indication for operative treatment is the depressed fractures that are not compounded. Of course very slight depressions do not require elevation. Those of more than just an appreciable degree should always be cared for after shock has ended. Oft times a laceration of dura or brain beneath the depressed area would alone warrant operative correction. The possible irritation of the irregular mass of depressed bone is likewise sufficient reason for correction of the depression. These steps aid materially in the prevention of post-traumatic Jacksonian convulsions which may not occur until many years after the injury.

Methods to reduce edema of the brain and lower intra-cranial pressure of a dangerous degree have been introduced in the past few years to supplant the old operative procedures for decompression. Hypertonic solutions producing an osmotic process to reduce interstitial fluids have been administered by the intravenous route, by the oral route and as retention enemas. For a more even, continuous and prolonged effect the administration of a saturated solution of $MgSO^4$ as a retention enema as often as every three to four hours produced the best results. This does not induce the vomiting or general gastro-intestinal irritation that a similar drug produces when given by mouth. It has the additional advantage of removing the fluid from the body rather than merely shifting it into the blood stream from which position it will tend to go back into the tissues in time. As an adjunct to this measure glucose in fifty per cent solution may be given intravenously every three to four hours after shock has ended. It gives a more rapid loss of interstitial fluids but is less steady and a compensatory rise of pressure may occur if not fortified with retention enemas.

The patient's position in bed is important. After shock has been relieved or following operative procedures elevation of the patient's head and shoulders to a semi-sitting position and frequent shifting from side to side may not only aid in preventing pulmonary stasis but also encourages venous drainage from the head and decreases or prevents an increase in cerebral edema.

Subsequent to the period of shock, fluids and food must be supplied in quantities sufficient to maintain nourishment and proper metabolism. If the patient is able to take liquids and food by mouth, that is sufficient. If not intravenous glucose, saline subcutaneously or liquids by nasal tube should be given. We ordinarily limit such fluid intake to from 1500 cc. to 2500 cc. per day depending on the patient's size and condition. Removal of fluid by retention enemas should be carried on during this period.

The comfort of the patient is important. Attention to the body as a whole may reveal a full bladder, gaseous distention, a previously undiscovered fracture of a rib or long bone, or irritated skin, that on being corrected leaves the patient quiet and in a resting state. Sedation may be necessary when measures to reduce intracranial pressure and correction of irritation from other points in the body have failed to quiet the patient. We prefer to use the milder sedatives and they are used sparingly. Morphine is distinctly contraindicated since it not only masks the symptoms of intra-cranial pathology but actually, as shown by experiment, raises intra-cranial pressure. It is also a very dangerous drug in this condition because of its depressing effect on the respiratory center. Death from cranial injuries most frequently result from respiratory failure. I have seen respiratory depression develop to become the most distressing factor confronting the physician after morphine had been given. Codeine is much less depressing and often affords relief, particularly when used in conjunction with dehydration.

Spinal punctures are unnecessary as an aid to reducing intra-cranial pressure. There is danger of medullar failure from compression of the medulla in the foramen magnum when this procedure is resorted to in the presence of marked pressure. It does have its place, however, and that is for the removal of bloody spinal fluid. Within some forty-eight to seventy-two hours following an injury crenation of red cells in the fluid occurs liberating the chemical constituents of the cells. These chemicals produce an inflammatory reac-

tion identical with that of meningitis but without the presence of organism. Repeated punctures with gradual drainage of the contaminated fluid gives a fairly rapid improvement in the clinical symptoms. The conservative means of lowering the intra-cranial pressure is as a rule sufficient if used over a period of forty-eight hours or more to prevent untoward effect of spinal puncture.

Rest is one of the most important steps in caring for cerebral trauma. I know of nothing more important that we do to aid the patient in making a complete recovery than to give adequate rest. This will allow the maximum reparative process to take place. The length of time for the patient to remain at rest in bed is more or less arbitrary and must be governed by the patient's progress. Invariably the patient feels well enough to leave his bed before he should be permitted to do so. A minimum of two to three weeks bed rest should be insisted upon even in the minor injuries and longer periods advised depending on the degree of injury.

Contusions and lacerations of the brain occurring with injury may be sufficient to cause death. This is particularly true if the contusion is centrally located or in the brain stem. Less extensive changes respond to the reparative functions of our system if complications such as massive hemorrhage, cerebral edema and compound fractures or infections are prevented by the methods outlined above. Extensive changes in the cortex may improve to give a normal or near normal function or may persist as areas of degeneration with symptoms referable to the area involved. At a later date such changes may result in cortical irritation as evidenced by convulsions. The presence of convulsions in the post-traumatic case may result from disturbance in intra-cranial fluid equilibrium and therefore does not positively signify actual cerebral damage.

In summary I wish to point out the need for each of us to have a knowledge of the practical principles used in the treatment of cranio-cerebral injuries. The patient is best handled by one understanding the anatomical and physiological factors involved. The correction of pathological processes will necessitate careful observation over a considerable period of time. Transportation of the patient in the immediate post-traumatic state is to be condemned as a dangerous and unwarranted action in most instances.

* * *

DISCUSSION

Dr. C. E. Northcutt, Ponca City:

Mr. Chairman and Dr. Wilkins—I first would like to compliment the chairman as well as his committee on their thoughtfulness in preparing such a program, so important not only to us but to the lay also, on this timely subject. Dr. Wilkins certainly has said an awful lot in a short length of time. I would like to make a few remarks that seem important to me along this line. I do not think that there is any other time in the history of medicine that the public itself as well as the industrial world is so dependent upon the end results that we obtain from our traumatic surgery, and especially the trauma of the brain. Now, because as we do know, we are living in a traumatic age, and it is also an age where most people are protected, and others from a financial view necessitate the burden to be thrown on the medical profession, even almost to where one has to have a legal degree to protect himself and the profession.

There are two main phases I think of. The first is the stage of shock. Now all of you are greatly interested in this stage of this type of work, because it is very necessary that we appreciate the full value and not permit ourselves to hastily pick up a patient and transport him several miles or several hundred miles where we can get better hospital and medical accommodations, because I am sure we all appreciate the well-known treatment for shock including, of course, as Dr. Wilkins has said, that the patient be moved as little as possible. There is but one variation and that is the use of opiates. I can heartily agree with Dr. Wilkins that no opiates should be given unless it be small doses of codeine, probably depending on the barbituric preparations. Opiates interfere with decompression processes as well as cover that most important symptom of progress that might be going on under the influence of the opiate, and that is our slowing of the respiration. We have to use surgical judgment when and how to do further

surgery. In decompression there are two phases, the mechanical, which is surgical, and the other physical and that is the dehydration process which is so in detail explained to you by the doctor. I can hardly agree with the conservativeness of the doctor in reference to spinal punctures in decompressing these patients. I think we have to use our surgical judgment well seasoned with experience in decompressing these patients. We realize the dangers of spinal puncture, but by using surgical judgment and gradually draining off the spinal fluid, often times we will save a life and also save permanent disability. The third phase bothers me. That is the rehabilitation or reconstructing these patients back to as near normal as possible after they have gone through the shock and the surgical procedure or the physical decompression. We are called upon now to decide and tell and go up on the witness stand as to the final outcome from the percentage point of view. Sometimes we feel badly when one doctor says one hundred per cent disability, another twenty-five per cent, and perhaps one says there is none at all. We must realize, therefore, that we do have traumatic neurosis. This traumatic neurosis may be temporary and it may be permanent, but I think the experienced physician can carry out his treatment with these patients and try to keep them away from some of their friends who come to see them and some of the legal profession, and give them some encouragement. For our self-preservation and protection it is necessary that some member of the patient's family see us through. I am certainly interested in this particular subject because I know I am one of you who sees these cases and problems, more especially the end results. With regard to this third stage, it is important that we have the proper counsel and the proper qualifications before we get up on the witness stand and give testimony. It is ridiculous, some of the differences in opinion, and when one man says that this particular case has one hundred per cent disability and another says he is practically back to normal, that is a reflection on our integrity as well as our ability, and we must give those things the same consideration as the things the doctor has brought out in his paper. I want to thank you, Dr. Wilkins, for your splendid paper and I appreciate the chance to make these few remarks in discussion.

Dr. Risser:

As between the clinical examination and the x-ray, which is the one to be considered more?

Dr. Wilkins:

I wish to thank Dr. Northcutt for his kindness in discussing the paper and particularly in bringing out the points he did relative to the third phase. In answer to your question, Dr. Risser, I have no hesitancy in saying the clinical observation in my mind is by far more valuable than x-ray evidences of change in the skull. Thank you very much.

Differential Diagnosis of Fifth Nerve Neuralgia*

JESS D. HERRMANN, M.D.
OKLAHOMA CITY

The subject of fifth nerve neuralgia (trigeminal neuralgia) (tic douloureux) has been adequately covered in the literature in all of its phases, both in volume and in completeness. There seems to be little need of using the time of this society in mentioning the problem again as it is obvious that this brief discussion will in no way compare with the masterful descriptions which fill the literature. On the other hand, gentlemen, our attention is constantly being called to patients who have had a major neuralgia of the fifth or trigeminal nerve for years without relief from their symptoms. Most of them, however, have not gone unmolested. In the beginning of their trouble a few teeth were removed which on examination appeared normal. Later all of their unoffending

*Read before the Eye, Ear, Nose and Throat Section, Annual Meeting, Oklahoma State Medical Association, Enid, April 7, 1936.

teeth were removed. Then in desperation they have had para nasal sinus explorations without other indication than pain, peripheral neurectomies, chiropractic adjustments, all types of drugs and in one recent case the patient had had his eye removed. We know that all of these measures have not been advised by their physicians. Most of these patients have very definite ideas as to the cause of their pain and procedures to be used in removing that cause.

A factor which makes for multiplicity of therapeutic measures for control of this disease is that there are normally remissions during its course. The measure being used at the time of the remission receives the credit for the cure.

We have seen several cases with this disease who have had infected para nasal sinuses and infected teeth. These of course should be cared for, but no promises made as to the relief of their major pain as a result of the treatment.

The fact remains that there is a condition known as trigeminal or fifth nerve neuralgia which can be cured by interruption of the sensory fibers of the fifth nerve and should be done before the patient becomes a mental and physical wreck.

Trigeminal neuralgia usually occurs between the age of forty and eighty years. Occasionally it occurs in younger individuals. At first a sharp, shooting, lancinating pain appears in one of the divisions of the trigeminal nerve, usually the second or third. There has been no apparent exciting cause. The patient describes the pain as an electric shock, a red hot iron, a knife thrust in the face. The paroxysm of pain appears suddenly and leaves in the same manner after one to several seconds. Early in the disease the "attacks" or periods during which paroxysms occur are short and infrequent—being for one to three weeks once or twice a year. As the disease progresses the attacks become longer and more frequent until finally the patient may expect a paroxysm at most any time.

Between the paroxysms the patient is free from pain, but the fear of its return, the suspense of waiting is to many patients as incapacitating as the pain itself. The pain is referred to the terminal distribution of the branches of the trigeminal nerve, to the lips, gums, teeth, tongue, nose and forehead.

The paroxysms of pain are usually induced by talking, chewing, swallowing, sudden noises or a draft of air, and in addition they may occur spontaneously. These patients often have not washed their faces or teeth for weeks, go unshaved and many of them are quite undernourished as a result of voluntary starvation. As to the degree of pain that these patients have, there is nothing more severe. Morphine has very little effect on this pain and this probably saves many of these unfortunates from becoming addicted to the drug.

On examination very little will be discovered. There is no disturbance in sensation over the painful zone. The patient will protect himself and draw away if attempts are made to touch the side of the face involved.

In making a differential diagnosis the following conditions must be present before a final diagnosis of trigeminal neuralgia is made as has been pointed out by Frazier[1]:

1. No associated sensory disturbance over the trigeminal zone and no atrophy of muscles supplied by the motor root.
2. The pain must conform to the trigeminal zone and be referred to the terminal areas.
3. The pain must occur in paroxysms and is not continuous.
4. In the early stages of the disease there were periods of weeks during which time they were symptom free.

In addition there is usually some area which when stimulated will precipitate the pain. This is the so-called "trigger zone." It is also quite unusual to find the condition bilateral.

PAIN AS A RESULT OF PERIPHERAL STIMULATION OF THE FIFTH NERVE

It would seem that the pain accompanying dental or sinus infections could be differentiated from major trigeminal neuralgia. The pain is more or less constant with exacerbations and there is tenderness of the nerves over their foramina of exit. The history is usually one of short duration and clinical signs of infection are usually present.

A similar picture will be seen in cases of involvement of branches of the trigeminal nerve by invasion of neoplastic growths of the sinuses or naso-pharynx. As the tumor enlarges and destroys adjacent tissues the nerve fibers may be interrupted and an anesthesia of the corresponding cutaneous zone result. In all of these cases roentgenograms are an aid to diagnosis after a careful history and physical examination.

POST-ZOSTER NEURALGIA

A very painful neuralgia occasionally appears following herpes zoster. This is true of zoster involving the trigeminal nerve as well as of the spinal nerves. The history will reveal the onset with the skin eruption, and cutaneous scars of the original lesion can be seen on examination. In addition to the neuralgic pain there will be an accompanying hyperesthesia of the cutaneous field involved. The pain is more or less continuous and of a burning character.

The condition is rare but should be recognized as the treatment is different from that of the major neuralgia of the fifth nerve.

NEURALGIA FROM INTRA-CRANIAL TUMOR INVOLVEMENT

Pain over the distribution of the fifth nerve may result from tumors in the region of the cerebello-pontine angle. It is a rare symptom of the acoustic neuromas, the most frequent of the angle tumors. Several cases, however, have been reported in which the pain was similar to that of tic douloureux. In most cases however when the fifth nerve is involved at the angle there is evidence of involvement of other of the cranial nerves. The pain is more likely to be continuous and sensory disturbances of the cutaneous field are present.

Tumors of the gasserian ganglion, its sheath or in the parahypophysial region may produce pain over the distribution of the trigeminal nerve. In tumors arising from the gasserian ganglion or its coverings pain is a constant symptom, but is more or less continuous and the paroxysms are not pronounced if present at all. There will be a hypesthesia or anesthesia over a cutaneous zone after a time and involvement of the motor function of the nerve will eventually result. In cases of endotheliomas they often push their way through the dural opening for the sensory root and cause symptoms of a posterior fossa lesion.

In parahypophysial lesions the neuralgias are ordinarily overshadowed by other symptoms. The pain is usually referable to the first division and is not paroxysmal in nature. On neurological examination other findings will be present to give a true insight into the existing condition. These findings are usually referable to the second, third, fourth or sixth cranial nerves and general pressure phenomena. Careful history and neurological examination will in most instances reveal the presence of an intra-cranial tumor.

GLOSSOPHARYNGEAL NEURALGIA

A neuralgia of the ninth nerve, the pain of which is comparable to that of tic douloureux, was first indicated by Harris. The point of differentiation lies in the distribution of the pain. These patients will often point to the angle of the mandible when asked where their pain is. On questioning however the pain is deep and not at the terminal distribution of the trigeminal nerve. It is localized in the region of the tonsil, base of the tongue, nasopharynx and occasionally to the ear. The paroxysms are produced by swallowing, not chewing, by pulling on the tongue or stimulation in the region of the tonsil such as touching the mucous membrane in this area with a piece of ice.

This is a true neuralgia of the ninth nerve and can be cured by intra-cranial section of the glossopharyngeal nerve.

ATYPICAL NEURALGIA

It must be kept in mind that in addition to the pain fibers carried to the face by the fifth cranial nerve there is another system of pain fibers accompanying the vascular tree. Patients can develop an atypical neuralgia as a result of irritation of these fibers. This syndrome has been thoroughly described by Fay.[2] The pain is dull, throbbing, aching and deeply situated in the tissues. It follows the distribution of the vascular tree and not the trigeminal nerve—unlike the true major neuralgia, paroxysms are not produced by peripheral stimulation over the zone supplied by the nerve but is prone to appear with emo-

tional upsets, fatigue and debilitating conditions. Onset of the pain is gradual and increases in degree as the day progresses and is of a constant nature.

On physical examination points of tenderness and hyperesthesia can be found along the arterial tree. The carotid, temporal, facial and occipital arteries should be palpated and if the pain is vascular in type there should be increased tenderness over the vessels on the side of the pain.

SPHENOPALATINE NEURALGIA

For sake of completeness we must mention those few cases of vague facial pain radiating to the shoulder which are relieved by cocainization or injection of the nasal ganglion. Sluder[3] has described this condition and has named it "nasal ganglion neurosis." Most cases reported as having obtained relief from cocainization of the nasal ganglion have had pain about the eye, nose, maxilla and temple often radiating to the shoulder. The pain is usually dull, throbbing and aching in type and more or less constant. There are in addition vasomotor disturbances as expressed by sudden flushing or pallor, pupillary dilatation and salivation. These are true disturbances of the sympathetic nervous system and our knowledge of the pains of sympathetic origin is far from complete.

In conclusion may I stress the importance of careful consideration of these patients with facial pains. The true case of trigeminal neuralgia will have no sensory changes, the pain will occur in paroxysms, conform to the distribution of the trigeminal nerve and be referred to its terminal branches. Furthermore during the early stages of the disease there were periods of weeks during which there was no pain.

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* * *

DISCUSSION

Dr. Marvin D. Henley, Tulsa:

Dr. Hermann's paper has opened a subject that could be discussed at great length. He has covered the subject with his usual thoroughness and leaves little to add. I think this is one of the finest presentations that has been made here, and it shows that a presentation of this subject is not only of marked interest but also of clinical value. This has been rather looked on as an illegitimate child of medicine, and this attitude is possibly one of the causes contributing to the catastrophies of the diversified ineffective treatments instigated. There is much careful observation, rational conservatism and common sense in this paper.

From a practical standpoint the most important task to me in the diagnosis is the discrimination between cases of idiopathic major neuralgia and trigeminal neuralgia due to organic lesion of the nerve or its roots.

Not infrequently in the major trigeminal neuralgia I have found that when the tongue is involved, a metallic taste is sometimes described by the sufferer.

Dr. Herrmann speaks of the major neuralgia. I would like to mention in passing the minor neuralgias under which are classed the varieties of facial pain which are secondary to disease of the various local structures such as the teeth, the eye, the ear, the nose, and the tongue. The pain can be distinguished by certain features as belonging to one or other of two types. The first is a true neuralgia, that is to say a pain which is distributed along the course of one or more divisions of the trigeminal nerve, usually starting in the neighborhood of the diseased structures and associated with tenderness along the affected branches of the nerve. The second is a visceral pain, referred to some spot which may be at a distance from the disease, in which case it is usually not accompanied by decided tenderness along the course of the nerve to which the pain is referred, though there may be superficial hyperaesthesia.

Some of the other diseases which occur to me which sometimes cloud the issue are: migraine, gummatous meningitis, gummatous periostitis, tabes dorsalis, iritis, glaucoma, and malignancy.

Every otolaryngologist has in reserve some scheme of differential diagnosis of the fifth nerve neuralgia, which he brings forth as the occasion demands, but it is particularly fitting that this subject mat-

ter should be presented from the broader point of view of the brain surgeon.

Dr. Herrmann has presented a clean cut differential diagnosis of the fifth nerve neuralgia, and the members of this section of the *Oklahoma State Medical Association* are indebted to him for renovating this subject matter.

UROLOGIC BACKACHE*

A. R. Russell, M.D.
McAlester

KIDNEY

That kidney diseases, as well as those of other genito-urinary organs, do produce backache, and this, often of the most intense character, there is no doubt. Consequently I shall endeavor to give you a brief summary of the conditions that do cause it, and our methods for differentiating it from the pain due to bone and joint lesions.

As a rule, backache is produced by a kidney condition only when drainage is interfered with, such as by blocking from stones, infection or stricture, either intrinsic or extrinsic, from renal enlargement, congenital or neoplastic, and from malposition.

The most frequent causes of acute unilateral high backache of kidney origin are stones and infection. The symptoms of these are classical and accurate investigation will reveal their true nature. Urinary examination with the detection of blood cells, or pus and bacteria, x-ray examination giving its important information, and finally the ureteral catheter, will solve the trouble.

It should be urged at this point, the employment of the ureteral catheter in the acute renal retentions from infection. The acutely infected kidney commonly designated as pyelitis, but which is almost invariably a pyelonephritis, with retention from edema at the uretero-pelvic juncture, is too often allowed to remain under medical care by the internal administration of alkalies and the ingestion of copious amounts of water. The retained septic products are thus forced into the substance of the kidney, certainly jeopardizing the integrity of that organ until such times as nature sees fit to issue a spontaneous evacuation.

The chronic high backache, the result of a silent, insidious hydronephrosis from renal or ureteral block with negative evidence of disease by the x-ray and urinary findings, is frequently deceptive and may exist for months or years without recognition. It is only translated by thorough scientific urologic study, ureteral catheter and radiography with pyelography.

On numerous occasions you may see an unexplained chronic high backache determined by finding retention in the renal pelvis resulting from congenital or acquired stricture of the ureter, aberrant vessel, or pressure from neighboring lesions without gross evidence of tumor mass and with negative radiological and urinary findings. In all chronic high backaches, particularly if unilateral, hydronephrosis must be borne in mind. Very frequently such a condition is bilateral and a bilateral high backache may exist from the same origin.

Other rare kidney conditions productive of backache are the congenital lesions, such as polycystic, horseshoe, or ectopic kidney. Such backaches have tendencies to be more central or bilateral and have an equal tendency to fluctuate, involving first one side and then the other.

In renal tumors the backache may result from pressure of the growth or from metastatic involvement of the spine.

Ptosed and movable kidneys: It is remarkable that some ptosed and freely

*Read before the Southeastern Oklahoma Medical Association in semi-annual session at Durant, Okla., December 10, 1936.

movable or floating kidneys cause no pain at all. This is due to the fact that the ureter is not kinked and there is no interference with drainage, for so long as there is no obstruction to the flow of urine down the ureter, the patient will experience no pain. The character of the pain in the ptosed and movable kidney where obstruction exists, is of a dull ache in character, often with exacerbations of sharp spasms, so similar to that of spondylitis and lumbago. The differential diagnosis here is easy, because the definite diagnostic data obtained by cystoscopy and x-ray, is conclusive evidence of the causative factor in the production of the pain.

All obstructive lesions of the ureter, stricture, kinks, stone, tumors and pressure from without, such as a pregnant uterus or abdominal or pelvic tumor cause obstruction and back pressure with resultant dilatation of the ureter and pelvis of the kidney and pain. The differential diagnosis of all these conditions can usually be promptly made by cystoscopy and pyeloureterograms. Where spondylitis exists in conjunction with any of the above conditions, it behooves the urologist to differentiate spondylitis as a factor in the production of the pain.

Backache from ectopic kidney is more likely than any other type of kidney to be confused with some pelvic, sacro-iliac or sacro-lumbar disturbance. On account of its low position, usually over the sacro-iliac synchondrosis, back symptoms in this neighborhood are more likely to occur. Some cases of acute backache over the sacro-iliac region may be due to stone in the pelvic ureter, and the acute colic referred entirely to this neighborhood with no reflection elsewhere.

Nephritis: The congestion due to nephritis may or may not cause pain in the back. It is usually noticed that backache is especially present when hemorrhagic nephritis occurs. The differential diagnosis as a rule is easy, beacuse the condition can be so definitely proven by an examination of the urine, together with the systemic symptoms such as nausea, vomiting, oedema, headache and increased blood pressure.

The acute and chronic pyogenic inflammations of the kidneys: In these conditions congestion and stasis often produce backache, ranging from a dull heavy ache to the most intense kidney colic.

The differential diagnosis is also easy in the acute types, because of the urinary findings and general symptoms. In the chronic types, there is only an occasional pus cell found in the urine; where the backache and tenderness is out of proportion to the urinary findings and the x-ray demonstrates a spondylitis, it may tax our ingenuity to arrive at the real solution of the problem. All the refinements of a urological as well as orthopedic examination must be used in order to make a correct diagnosis.

While the kidneys seldom contribute to the low backache, the type which I take it we are here particularly to discuss, the lower urinary tract and the genital organs assume a paramount position in the production of this condition.

PROSTATE

Diseases of the prostate and seminal vesicles are probably in the background of as many low backaches as any other pathological condition. They may contribute to this complaint in a general and in a special way. In a general way by toxemia and metastasis, and in a special way by pressure or adhesions with reflections.

The low backache occurring most pronouncedly in the early morning, in many instances awakening patients and making motion very uncomfortable but improving on motion and gradually abating as the day progresses, is the typical backache of prostate and seminal vesicle origin. Since the prostate is not a urinary organ, but offers itself in urinary symptomatology only through obstruction or urethral irritation, the majority of the chronic infections of this gland and of the vesicles produce no urinary symptoms which would suggest their disease, and hence reflected pain, such as lumbago, is not suspected as originating from these structures. Indeed, the reflected pains and the pressure phenomena of prostatic disease, particularly in younger individuals, are most common symptoms of disease. Some patients with sclerotic prostates and vesical neck contracture, having a persistent backache may be relieved on removing the obstruc-

tion by means of punch operation or transurethral prostatic resection.

Often the origin is in the prostate and vesicles, some due to an association of disease in the gland through pressure and adhesions plus changes in the bone or joint surfaces due to extension of either inflammation or tumor growth. In many instances the prostate and vesicles are swollen and produce symptoms through pressure alone.

In the typical case, with backache, pains in the perineum, pain or heaviness in the testicles, frequency, nocturia, premature ejaculations which may be blood stained, lassitude and loss of sexual vigor, the diagnosis is easy, but in that type where the chief symptom is backache and an x-ray shows definite evidence of spondylitis, and with a small prostate and barely palpable vesicles, with only a few pus cells in the fluid, expressed after massage, it is rather difficult to convince the patient that his backache is due to inflammation of his prostate and vesicles, especially when he has never had any venereal disease and no definite symptoms pointing to his genito-urinary organs.

One should rely for diagnosis on the type of the backache, its intermittent character, its usual extension down the back of the thigh and back and outer side of leg and along the posterior limit of the crest of the ilium; its improvement on exercise and its return and exaccerbation on sitting for any length of time, *e. h.*, when playing cards or when riding in an auto or railroad car. The feel of the prostate is also important as well as the character and contents of the fluid, expressed on massage, and the fact that the vesicles are palpable. (You cannot palpate a normal vesicle.)

In some cases the pain of seminal vesiculitis and prostatitis may be so severe as to almost simulate renal colic. There are patients who receive prompt and immediate relief by massage and emptying of the ducts. The ones with marked sclerosis and adhesions are much more prone to resist therapy and require protracted treatment. Quite a definite percentage of long continued prostatic and vesical infections are associated with lumbo-sacral arthritis and need not only careful urological therapy but also proper orthopedic attention.

In women the urethra and the trigone contribute, alone and in association with disease of the pelvic organs to the production of this complaint. In many instances urinary symptoms may be present, such as frequency, urgency and pain, along with the backache.

Strictures of the urethra are not at all uncommon and dilatations and corrections will occasionally produce a pleasing result.

CARCINOMA OF THE PROSTATE

Backache, low lumbar and sacral in location and usually severe, frequently accompanies carcinoma of the prostate. This is especially marked when there has been metastasis to the lumbar spine and pelvic bones.

Carcinoma of the prostate is a frequent source of backache, either from pressure upon its capsule or from implication of the pelvic nerves by periprostatic inflammatory reaction or carcinomatous infiltration. Frequently the severe backache from carcinoma is the result of bone metastasis. Hence, all carcinoma of the prostate should have thorough radiological study.

The backache resulting from carcinomatous changes in a gland is particularly prone to have associated pain along the sciatic and in the hip joint. Usually urinary symptoms will appear and attract attention but in some instances the backache or the sciatica is the original and predominant symptom. Hence, severe backache in a man beyond middle life, regardless of urinary symptoms, should call for a rectal examination and if hardness, either localized or general, is elicited, carcinoma is almost sure to exist.

In the backache of late carcinoma where there is a bony hardness of the prostate and when metastasis has occurred, the x-ray makes the diagnosis positive; but in the early cases when the prostate is of doubtful induration and no metastasis has occurred, the diagnosis can only be confirmed by obtaining a section from the prostate for microscopical examination.

It is however apparent that an examination of the prostate and vesicles not only by palpation but by expression of secretion and through examination of the contents, is important in any case of low backache. The other urinary and genital organs may

be expected to contribute far less frequently than the internal genitalia just described.

Occasionally a bladder tumor, by infiltration of the ureteral orifice, one or both, may cause a unilateral or bilateral backache due to renal retention. Such tumors by extension of the growth outside of the bladder with involvement of the pelvic nerves, or by bone metastasis may also produce back pain. These symptoms appear late and are usually preceded by the cardinal emblem of bladder tumor, namely hemorrhage.

UNDULANT FEVER (MALTA FEVER)

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Probably every physician has at some time in his career seen cases of fever that he has not been able to diagnose to his complete satisfaction. In the last twenty-five years, fevers of undetermined origin have been encountered, watched closely, treated symptomatically, and recovery has followed in a majority of cases. This group of undetermined fevers has gradually been reduced, largely through the use of more effective laboratory methods as diagnostic aids. The recognition of typhoid and paratyphoid fever, the various dysenteries, malaria, tuberculosis, tularemia, typhus fever and Rocky Mountain spotted fever, have all served to clarify many of the obscure febrile disorders.

Recently, recognition of undulant fever (Malta fever) in the United States, and subsequently, the relation of this malady to infectious abortion of livestock is another important contribution to our knowledge of febrile diseases in this country. Undulant fever is a disease primarily of livestock—secondarily, of man. It is a general infection with Brucella organism and may be classed with the specific bacteriemias such as typhoid fever.

HISTORICAL

In 1861, Marston in Malta, definitely distinguished the disease clinically from typhus and typhoid fever for which it had been diagnosed before this time. The disease was called Malta fever because it was first discovered in Malta. In 1886, the Brucella organism was first discovered by Sir David Bruce, by recovering the organisms from the blood and spleen of patients, cultivating the organisms and producing the disease in monkeys. 1891, Wright in England, showed that the blood of patients contained agglutins against Brucella melitensis. In 1896, a Danish veterinarian discovered the cause of contagious abortion in cattle which he called Brucella abortion. In 1904-1906, Bruce discovered that goats were the chief reservoir of the disease in Malta, usually harboring the organism in the milk and urine without any evidence of illness.

In 1916, Good and Smith isolated Brucellus abortion organisms from pigs which had aborted and this animal has since been shown to be an important source of infection to man, especially in slaughtering houses. Two more apparently unrelated diseases can hardly be imagined, yet Alice Evans, in 1918, showed by laboratory methods that the Bang's Brucella and the Bruce micrococcus are indistinguishable.

INCIDENCE

The disease is now recognized as an important public health problem in this coun-

REPORTED CASES AND DEATHS
1925-1936

Year	Oklahoma		United States	
	Cases	Deaths	Cases	Deaths
1925			4	
1926			448	
1927			217	41
1928			647	
1929	4	0	552	41
1930	2	0	1420	63
1931	13	2	1351	65
1932	5	1	1326	71
1933	15	2	1659	72
1934	4	0	1887	
1935	10	2	1897	
1936 to Aug. 1	25			

try. Cases are being reported from every state in the United States. In 1906, Craig reported the first case in the United States, this being a nurse in Washington, D. C.

INCIDENCE IN CATTLE

The Federal and State Veterinary Department in Oklahoma report on testing for Bang's disease in cattle in Oklahoma for 1935 shows twelve per cent reacting.

EPIDEMIOLOGICAL

Combining the individual investigations of Surgeon Hasseltine and Acting Assistant Surgeon Hardy, there is epidemiological data on four hundred and forty-two cases. They divide the cases into three groups as follows:

1. One hundred and ninety-eight cases (one hundred and three males, ninety-five females) that had little or no contact with livestock and whose probable source of infection was raw dairy products.
2. Forty-three cases (forty-two males, one female) living in cities and having direct contact with livestock in slaughter houses or meat packing establishments, whose most probable source of infection was contact with carcasses of infected hogs.
3. Two hundred cases (one hundred and ninety-one males, nine females) living on farms and having frequent contact with livestock and also using raw milk products whose probable source of infection is contact with infected livestock and use of raw milk products.

From these figures it appears that about forty-seven per cent probably contact the disease through the use of raw milk products, nine per cent contact the disease as a result of their daily occupation in handling meat and forty-four per cent received their infection as a result of contact with infected livestock on farms combined with the use of raw dairy products.

MORPHOLOGY

The Brucella organism is a small gram negative organism of cocoidal or short rod shape, staining with ordinary analine dyes, and occurring singly, or in pairs, sometimes in short chains.

There are at least three strains of the Brucella organism.

1. *Caprine:* (Variety B Melitensis.) Carries the disease in goats.
2. *Porcine:* (Variety B Suis.) Carries the disease in hogs.
3. *Bovine:* (Variety B Abortion.) Carries the disease in cattle.

All three strains may infect susceptible domestic animals or man.

The Porcine strain is the most serious in man, the abortus the least serious. Man seems to have a high grade of resistance to the abortive strain, as is commonly found in milk. The first generation of the organisms obtained from blood or urine or feces, grow very slowly on artificial culture media. The Melitensis and Suis grow in ordinary atmospheric conditions but the abortus require atmosphere containing about one per cent of CO^2 by volume.

INCUBATION PERIOD

The incubation period is about fourteen days. However, cases have been reported from five to six days, even up to one month or longer.

SOURCE OF INFECTION

Infection is contracted through the use of milk and milk products, or by handling of infected animals or carcasses of animals. In handling the aborted placenta of an infected abortive animal, the organism may enter through a break in the skin.

SYMPTOMS IN MAN

The onset is usually insidious, very similar to typhoid fever. However, it may be sudden with high fever, and accompanied with a great deal of pain in various parts of the body, particularly in the muscles and joints. Usually the fever increases slowly accompanied by headache, pain and constipation; the temperature may range from sub-normal to 105 degrees in the afternoon. After the temperature has risen by irregular steps to its maximum, it usually declines by lysis, and either remains normal or sub-normal for a period of a few days, followed by a recurrence in temperature, though not as high as the initial rise. These recurrences may be repeated several times. It is through these temperamental waves that the appropri-

ateness of the term "Undulant Fever" is recognized.

Sweating is a marked characteristic feature of the disease and is at times quite profuse. Sweats usually occur while the patient is sleeping regardless of the time of day. Weakness is a constant symptom. It may be the first sign complained of and before any fever is noted.

It is quite often the case that the patient feels quite well in the morning but by afternoon is exhausted and ready to give up any form of work or exercise. Pain may be slight or very severe. The author recalls a case who complained of very severe headaches and marked pains in lower limbs. As the disease progresses there is loss of appetite and weight. At the height of the malady even with an excessively high temperature, the apathetic, toxemic state associated with typhoid fever is absent.

There is also anemia as the disease advances. Haemoglobin may be far below normal. There is also usually a leucopenia, there being definite decrease in the polymorphonuclears and a corresponding increase in the large mononuclear cells.

On physical examination there is very little to find except fever. The patient does not appear overly sick even when the temperature is high. The spleen is often found to be moderately enlarged, pulse rate is usually faster than is common in cases of typhoid fever. However, the patient may have a slow pulse, also there does not appear to be a toxic condition. The patient may be up and about except when the temperature is unusually high.

AGGLUTINATION TESTS

A valuable aid in the diagnosis of undulant fever is the agglutination test. The rapid or plate method requires less equipment and can be made in a few minutes, but all positives by this method should be followed by the test tube method to determine the titre in various dilutions. Formerly it was commonly held that a patient should show an agglutination in dilutions up to 1 - 80, however, it has been found about six percent of infected persons remain negative. Accordingly there is no diagnostic titre. However, a strongly positive sera has more weight.

OPSONO-CYTOPHAGIC TEST

The cytophagic activity of the leucocytes of the patient's blood may be used to determine the patient's resistance developed toward the Brucella organism. This test should be carried out within six hours after the blood is drawn. The average number of the Brucella organisms ingested by twenty-five cells chosen at random is determined. Huddleston adapted the following classification:

Slight Phagocytosis: 1-19 Bacteria per cell +

Moderate Phagocytosis: 20-39 Bacteria per cell + +

Marked Phagocytosis: 40 or more Bacteria per cell + + +

SKIN TESTS

To determine the sensitivity to the Brucella organism an intradermal injection of a suitable antigen is carried out. Angle of Kansas City, is using a killed vaccine of Brucella Suis (fifty per cent), Abortus (fifty per cent) containing six billion Brucella organisms per cc. . . . 0.04 cc. is injected intradermally. If the reading is delayed to the fifth or sixth day the pseudo reaction may be eliminated. At this time a positive reaction shows an indurated elevated nodule with varying degree of erythema at the site of the injection. There may be a slight necrosis and exfoliation as the elevation recedes.

The nodule is well defined and persists for a month or more. Infected persons tend to become positive within two weeks after onset and remain so for life.

Huddleston recommends using the nucleo-protein fraction obtained from the Brucella Abortus strain. The test is made by injecting 0.1 cc. of the fluid intradermally. The size of the local reaction which is characterized by a circumscribed erythema and slight edema may vary from one to three inches in diameter. It is read twenty-four hours after injection, and may persist for forty-eight hours or ninety-six hours. There is rarely, if ever, any necrosis or sloughing of the tissues at the point of the local reaction. In the infected, the local reaction may be accompanied by a more marked manifestation of the present symptoms. Those who are hypersensitive may show a severe systematic reaction

along with this local reaction. Those who have not been sensitized to the Brucella organism and who are probably susceptible to the infection show no local or systematic reaction. Often one sees in some individuals an erythema of one-half to two inches in diameter with no edema at the site of injection; this has the appearance of a non-specific reaction.

Proposed system for diagnosis of undulant fever, according to results of agglutination, skin test and opsono-cytophagic test:

Agglutination Test	Skin Test	Opsono-cytophagic Power of Blood	Status Toward Brucella
–	–	0-20 Bacteria per cell, Average – to +	Susceptible
– to +	+	0-40 Bacteria per cell, Average – to + +	Infected
– to +	+	40-100 Bacteria per cell, Average + + +	Immune

DIFFERENTIAL DIAGNOSIS

Many undulant fever cases are erroneously diagnosed typhoid and para-typhoid fever, malaria, focal infection, "rheumatism," influenza, prostatitis, appendicitis, septicemia, puerperal infection, and tularemia. These are the most common, however undulant fever may simulate many other diseases. All suspected cases should have an agglutination test, skin test, and opsonic-cytophagic tests made. The State laboratories and several of the private laboratories in Oklahoma are running the undulant fever agglutination test on all negative Widals. Some state laboratories are also running them on all blood sent in for Wassermann. Our State laboratories are discarding the aluminum plates for Widals and are requesting the blood be sent in in Wassermann tubes. At least two cc. of blood should be collected. Running Widals from a drop of dried blood on an aluminum plate or what-not, is very unreliable.

COMPLICATIONS

Complications that have been reported are arthritis, epididymitis, suppurative lesions, meningitis, salpingitis, empyema, puerulent cholecystis. Abdominal organs may be affected, especially the female reproductive organs. Cases of abortion in women have been reported.

PROGNOSIS

The mortality rate is low, about two to four per cent resulting fatally. The disease, however, usually disables the patient for many weeks or even months. Some cases recover in two weeks with no relapse, but the disease is noted for its relapses.

TREATMENT

Angle reports seventy-two per cent cures with the vaccine therapy. He is using the same vaccine as used in the skin test, starting with 0.25 cc. given intramuscularly and increasing 0.25 cc. every two to three days until a severe systematic reaction has occurred, but never exceeding one cc. After a maximum of seven doses has been given, a period of two to three weeks should be permitted to elapse after which treatment may be continued if deemed necessary.

Elderly persons and heart conditions, especially bacterial endocarditis, should not be given the concentrated vaccines. A very dilute vaccine may be used.

CONCLUSION

According to reported cases undulant fever is on the increase in the United States. The actual cases are probably not on the increase as much as the statistics show because in the past it was often unrecognized.

Since our veterinarians show us that a large percentage of our cattle are infected, we believe there are numerous cases of undulant fever here in Oklahoma that have not been reported. All cases should be promptly reported to the State Health Department on the blue weekly report cards mailed to all physicians in the State.

We are making a study of the incidence of undulant fever cases here in Oklahoma, and expect to give you a report at some later date.

In all cases where the diagnosis is uncertain agglutination and skin tests should be made, keeping in mind that all persons who have been or are now infected with the Brucella organism will give a positive skin test. We suggest that an agglutination test be carried out on all negative Widals and malaria smears.

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A CHOICE OF ANESTHESIA*

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As the title of this paper suggests, there is really and truly a choice to be had in this day of advanced medical science, when an anesthetic is selected for a proposed surgical operation. Anesthesia has kept pace with the other medical specialties in their rapid evolution and development of more scientific methods, drugs and technique. Indeed it is a fact, that in very few branches of medicine has there been the remarkable improvement that has taken place within the specialty of anesthesia during the last two decades. The patient no more is compelled to take chloroform or ether without any alternative and the anesthetist has ceased to be limited to one or two anesthetic agents. Today we have many and varied substances from which to choose and our needs are more and more being satisfied in having a suitable anesthetic for most occasions.

In discussing this subject I shall speak from the trained anesthetist's point of view and with proper consideration for the surgeon and the medical man. I shall keep the patient's welfare in mind and at the same time make allowance for the surgeon's preference of certain types of anesthesia. I shall speak of the general practitioner's duty to his patient in preparing him for an anesthetic. I shall stress the fact that too often the family physician, the surgeon and the anesthetist choose an anesthetic to their own liking rather than one suited to the patient and the type of operation anticipated. And I want to emphasize, too, the truth that a patient does not always know the kind of anesthetic best suited for him and therefore should not always be allowed to dictate.

My experience has taught me that in dealing with children under six and eight years of age, nitrous-oxide induction with the addition of varying amounts of ether is the anesthetic of choice. In very small infants it is often desirable to give open drop ether. The reasons for ether with children are many. In the first place it is impossible to premedicate them as one does an older child or adult. The high metabolic rate together with the rapid respiration make smooth relaxing gas anesthesia almost impossible. The fact that we do not like to give small children narcotics post-operatively is another reason why ether is desirable. The acute pain following surgery when a child awakens suddenly at the termination of an operation is quite considerable. If some ether has been added with or without nitrous-oxide or ethylene the child will sleep long enough to be over the immediate shock and pain. There are exceptions to all rules and that applies here. Rib resections and the like, following immediately after some acute pulmonary process are best done under local novocaine or with light and short gas anesthesia. Paracentesis of an ear drum or the reduction of fractures of small bones are best done under gas alone, because these are not followed by pain but on the contrary by relief.

In older children up to the ages of fourteen or fifteen where pre- and post-operative narcotics can be given in sufficient amounts to produce desired results, I beliveve nitrous-oxide and ethylene are the anesthetics of choice. The older the child and the nearer they approach the adult, the greater the incidence of pulmonary complications following ether anesthesia. There may be one exception here and that maintains with open mouth operations

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such as tonsillectomy. Ether given in such operations seems to be followed by less disagreeable after effects. Allow me to express myself here when I say I do not believe as some few maintain that chloroform is ever indicated in children, much less to be the anesthetic of choice for any surgical procedure.

As stated at the beginning, when it comes to abdominal surgery in the adult, we today have many agents and combinations of agents which are highly satisfactory. They all have their indications and their contraindications and have their field of selectivity. Here we must remember that in speaking of a choice of anesthetic we must necessarily refer to our own individual opinion on the matter and not the combined concensus of many men. We should keep in mind that each surgeon has his own personal likes and dislikes for different anesthetic agents—that medical men and others lean strongly toward some and very much abhor others. That is only human.

Acute surgical abdomens are practically always operated most successfully under spinal anestheisa. Novocaine is the agent of choice although spinocaine, nupercaine and the like are satisfactory in experienced hands. The reasons for the uniform use of spinal in abdominal surgical emergencies are most all obvious. Acute infectious processes are always accompanied by varying degrees of muscular rigidity and therefore difficult to relax. A ruptured gastric or duodenal ulcer is characterized by a board-like rigidity of the abdominal muscles which are almost impossible to relax sufficiently under any other type of anesthetic. Lack of usual pre-operative preparation tends to make the intestinal tract troublesome by being ballooned-up with gas. The tonic contracted state of the gut tract produced by spinal is next in importance only to the muscular relaxation produced. Patients who come to surgery with an acute surgical abdomen often times have food retained in the stomach and vomiting is not infrequently disastrous under inhalation anesthesia. Temperatures above normal and an excited patient are other conditions which make safe general narcosis difficult. When extreme shock with low blood pressure is present, spinal anesthesia should be employed with utmost care. In patients with extensive intra-abdominal hemorrhage and an accompanying low systolic pressure the same holds true. In such instances it is often wise to use a light gas anesthesia with novocaine injected at the site of operation to produce muscular relaxation. Intravenous therapy of saline or glucose solutions just before or during operation may change the risk from a very poor one to a moderately good one.

Abdominal surgery performed on those with chronic or sub-acute pathology present a somewhat different problem for anesthesia. These patients can be well prepared for their anesthetic and hence it is not so imperative that one technique be adhered to. Adequate pre-operative drug therapy can here be employed and the gut tract put in ideal condition. There can be some elasticity employed in selecting the anesthetic and the surgeon's personal preference can be considered. The mental attitude of the patient and the condition of his nervous system here can be properly evaluated. These things are all important in making a selection. Roughly speaking laporotomies can be divided into lower and upper.

I feel very partial toward spinal anesthesia again in surgery involving the pelvis or lower abdomen. Proper exposure is very essential here and the two things which permit this are muscular relaxation and a quiet contracted intestine. Spinal has no competition in producing the ideal conditions for easy, neat surgery in the pelvis. The intestine is handled very little and the post-operative course is certain to be smoother. If the patient seriously objects or if the operation is expected to take an unusually long time, avertin supplemented by gas is highly satisfactory. Avertin gives considerably added relaxation over straight gas and its post-operative effects are quite pleasant. Lack of nausea and early pain are its chief attributes here. But avertin does not contract the gut and its relaxing effect is quite variable. I feel that ether anesthesia for most any abdominal surgery has many bad features and certainly no redeeming ones except that most anyone can administer it with a reasonable degree of safety.

Upper abdominal surgery involving operations on the stomach and gall bladder

require a different technique from pelvic surgery. In many instances spinal anesthesia is satisfactory but there are several features which often present themselves and are disagreeable. Retching and straining are most common among these. Actual vomiting often occurs when pressure is made in the epigastrium. These things cause delays and imperfect exposure. Here is a perfect place for avertin, supplemented by ethylene. Very little gas is needed, the patient is kept nice and pink and the relaxation is usually highly satisfactory. The long sleep following avertin is the one factor which reduces the post-operative vomiting in these cases to a minimum and that alone is worth while. Avertin is contra-indicated in cases with serious liver damage or impairment of function. In poor surgical risks for high abdominal surgery I can recommend nitrous-oxide-ethylene supplemented by one-half per cent novocaine infiltrated in the recti muscles and peritoneum. If you have never tried it I would say you have a pleasant surprise in store for you.

Operations on the breast, the chest wall or the pleural cavity are best done under nitrous-oxide or ethylene. Relaxation is not so important here and the advantages of gas over ether are too numerous to mention. Intra-thoracic surgery should be done with gas under positive pressure to prevent the accident of pulmonary collapse. There is one exception here as in children, namely, that rib resections for recent infectious processes should be done under novocaine field block. Nervous and apprehensive patients who fear general anesthesia can be given small doses of avertin previous to coming to surgery.

Surgery about the mouth and face where the application of a mask is awkward can be well done under avertin. Such operations as resection of the tongue, extensive lacerations of the face and plastic repairs are included in this group. Brain surgery can be done best under local anesthesia and where cooperation cannot be obtained avertiin is a valuable aid. I should like to sound a warning against the use of avertin where blood is liable to slowly run down the trachea and make a pulmonary complication possible.

Spinal anesthesia is surely the anesthetic of choice in transurethral resections and operations upon the kidneys. Inhalation anesthesia is always more or less hazardous where the high frequency current is used. Those who have done nephrectomies and removed difficult stones under spinal with its extreme relaxation will tell you that they are loathe thereafter to work under any other type of anesthesia.

Short surgical procedures can nicely be done under sodium evipal. This anesthetic, administered intravenously, offers quick loss of consciousness, a short deep sleep, considerable relaxation and a sudden uneventful return to consciousness without any complications or sequalae. It is especially advantageous in emergencies and when application of a mask to the face would hamper the operator. If you want to get enthusiastic about it just give about seven and a half grains to the patient suffering with a large peritonsillar abscess. In such cases an inhalation anesthesia is contra-indicated because of the frequent fatalities where serious impairment of the airway is present. It is highly recommended because of its ease of administration and its uniform good results.

To gather together the remaining few odds and ends of surgical procedures I should like to say that operations on the extremities are well done under nitrous-oxide or ethylene anesthesia. Caesarean operations are quite satisfactory under the same technique. Rectal work not requiring profound relaxation should be given one of the gases. Low spinal or even caudal is advantageous in overcoming a resistant muscle.

Everyone has read and heard patients discuss the subject of some of the more serious post-operative results of spinal anesthesia. I believe most of them are greatly exaggerated and some of them are out and out myths. This procedure, like another technique, requires some skill and precision to prevent getting into trouble. High spinal punctures are dangerous and reckless, promiscuous jabbing at the canal may produce paralysis, paraethesias and the like. I believe, that considering the large number of subarachnoid blocks done everywhere and by every sort of anesthetist, you will agree this procedure has about as low a rate of complications following it as any other technique in use today. To

inject a patient and then walk away and leave them unsupervised is to be mentioned only to condemn it. Oxygen and carbon-dioxide inhalations are often helpful and occasionally intravenous therapy is necessary as elsewhere. Therefore it behooves the physician to disabuse the patient's mind that he does not have the same chance under spinal that he does under general narcosis.

I would not feel satisfied unless I said a word or two in closing directly referable to the general practitioner and surgeon. Lengthy and promiscuous discussion with a patient about their anesthetic usually brings about trouble and puts the patient "up in the air" so to speak. Often times the mere mention of the word "spinal" at some thoughtless moment will abuse the patient's mind about the procedure and ruin your chances of giving the patient the anesthetic of your choice or the one best suited for his operation. In these days when patients are prepared with barbituric acid derivatives and opiates before coming to surgery they seldom are aware that the anesthetic has been given and regard the procedure as a part of the operating room technique. If they do not insist upon knowing what anesthetic you propose to use I see no good reason for getting them stirred up by explaining it to them. If they do ask it seems to me the sensible thing to do is to explain briefly and tactfully, leaving with them the thought that you are going to do the best thing for their welfare. Instead of putting the proposition before a patient in the form of a question if you will just state that you are going to give them such and such, they will frequently never offer any argument. To assure them that any procedure you decide upon will be done with skill and comparative ease is to sell them upon the anesthetic you have in mind. To force one kind or another upon them against their will is poor psychology and practice, to say the least. To be firm however in insisting that you know what is best is often the difference between putting it across and failing completely.

—o—

Physical and Spiritual Healing*

Rev. E. H. Eckel, Jr.
TULSA

"Luke, the beloved physician, and Demas, greet you."—*Colossians iv, 14.*

What a lot of interesting sidelights on human nature can be glimpsed from seemingly casual and unimportant verses in the Holy Scriptures! Closing his letter to the Colossians, as he closed nearly all his letters, with personal greetings, St. Paul here conveys the personal greetings of two of his friends who were also his companions while, living in his own house, but chained to a Roman soldier, he awaited his trial at Rome. Two friends—one of them a physician. But some time later—perhaps several months, possibly a year or two, or even longer—when he wrote his Second Letter to Timothy (the letter which is commonly regarded as St. Paul's swan song), we read the pathetic words, "Demas hath forsaken me, having loved this present world, * * * Only Luke is with me." The one friend could not stand the gaff. He failed in time of trouble and adversity. But the other friend answered to the description in the Book of Proverbs: "There is a friend that sticketh closer than a brother." And he was "the beloved physician," the companion of St. Paul on his missionary journeys, his medical attendant when he was buffeted by his "thorn in the flesh," and the author of two of the most interesting and valuable Books in the whole of the New Testament Canon, the Third Gospel and the Book of the Acts of the Apostles.

Today the concurrence of the Feast of St. Luke the Evangelist with the Nineteenth Sunday after Trinity makes it appropriate that we should consider the re-

*Preached by the Rev. E. H. Eckel, Jr., in Trinity Church, Tulsa, Okla., St. Luke's Day (XIX Trinity), 1936. (Submitted by a member of the Tulsa Auxiliary requesting publication.—Editor.)

lation between Religion and Medicine, and between physical and spiritual healing. For St. Luke exemplifies in his own person the close association that should subsist between them. He was a physician and he was an evangelist, a proclaimer of the Christian message. [Whether he was technically in holy orders, whether (that is to say) he had been set apart by the laying on of hands for any office and function of the Christian ministry, such as the diaconate or the presbyterate, we cannot say—and it is a matter of small consequence.] But we *do* know that he was a physician, not only because St. Paul so informs us, but also because the minute study of his two Books reveals a background of medical knowledge that is absent from the other Gospels and New Testament writings. More than half a century ago a certain Dr. Hobart made an exhaustive study of "The Medical Language of St. Luke" and came to the conclusion that some four hundred words more or less characteristic of St. Luke were words that were also used (often very frequently) by Greek medical writers. Subsequent students of St. Luke's Gospel and the Acts have tended to discount Dr. Hobart's findings without, however, overthrowing his main contention. It is significant, for instance, that St. Luke gives us the fuller of the two accounts of the birth of Christ—which has led many to suppose that he was the confidant in later years of St. Mary. He alone relates what has been called the "surgical miracle" of the healing of Malchus' ear, which Peter rashly cut off with his sword when our Lord was arrested in the Garden of Gethsemane. He alone tells the story of the Good Samaritan, and how he bound up the wounds of the man who had fallen among the thieves, pouring in oil and wine, which were recognized household remedies for wounds. In his accounts of various miracles of healing he distinguishes between demoniacal possession and disease; he is precise in telling how long the person healed had been afflicted and sometimes how old the person was—just such details as a physician would be interested in. And it is interesting to note that he alone records our Lord's quotation of the proverb, "Physician, heal thyself."

Of course, medical science as it existed in the time of St. Luke, was still very much in its infancy. But at least the medical profession then, as now, recognized the value of scientific observation and prognosis. And ever since the days of Hippocrates, "the father of medicine," some four centuries before our era, it sought to live up to the highest professional ideals. The so-called Hippocratic oath, incidentally, is still taken by doctors. But the greatest developments and advances in the field of medicine have taken place in the last hundred years,—yes, even in the lifetime of some who are here present.

In a delightful essay written thirteen years ago Dean Inge recalled some of the queer notions about health and disease that were prevalent in his boyhood back in the '60's and '70's. In those days, if you met a man wearing an overcoat in summer, with a woolen wrapper wound about his throat, and a respirator to prevent any pure air from entering his mouth, you could be sure that he was a consumptive—and it was commonly supposed that the disease was inherited. Nowadays fresh air treatment and an admirable and thoroughgoing campaign of public education have reduced the ravages of the White Plague to a minimum. Seventy years ago it was commonly supposed that the night air was poisonous, as the very name malaria suggests, and people slept with windows tight-closed. Not until 1897 did Sir Ronald Ross definitely establish that malaria was conveyed by the bite of the anopheles mosquito. Not until the turn of the century did Drs. Carroll, Reed, Lazear, Agramonte, and their associates trace yellow fever to a similar cause; and Dr. Gorgas, when he attempted to put their findings into practice in the Canal Zone, met at first with all sorts of official opposition and obstruction. Seventy years ago even the medical profession did not distinguish between typhus and typhoid, two totally different diseases. Children were taught that if they cut themselves between the thumb and first finger they would probably die of lockjaw. It did not occur to anyone that that is where one is apt to cut oneself with a dirty garden knife. In those days it was generally assumed that whatever the patient wanted to do was probably the worst thing for him to do and was suggested by "the disease." One hundred and fifty years ago it was supposed that even wash-

ing was dangerous, and the maxim for ablutions seems to have been, "Hands often, feet seldom, head never!" Children were encouraged to gorge themselves with food until comparatively recently, the idea being that to eat plenty of beef would make one as strong as the oxen whose flesh was devoured. A century ago gout ravaged the aristocracy, and as Dr. Inge says: "The victims were rather proud of it, so long as it was understood that it was 'rich man's gout,' which comes from drinking too much, and not 'poor man's gout,' which comes from eating too little." Bleeding was still a sovereign remedy up to the memory of some here present. The red and white stripes of the barber pole, representing blood and bandages, recall the fact that the barber until comparatively recent times practiced bleeding—and some of them still do . . . by accident. When a certain eighteenth century aristocrat fell against a marble table and cut his head open, a surgeon rushed upon him and bled him at once, though Nature was already doing so very profusely!

In short, the advance in medical science and in the popular knowledge of hygiene in the last five or six decades is almost unbelievable and gives substance to the hope that cures may yet be found even for such dread diseases as cancer. The annals of modern medicine, with the revolutionary contributions of such men as Harvey, Lister, Jenner, Pasteur, Trudeau, the conquerors of malaria and yellow fever, right down to the Mayo brothers today constitute one of the most thrilling romances of modern times. God be praised for the unselfish and self-sacrificing labors of the doctors in the cure of disease and the alleviation of suffering. Their knowledge is God-given. Their devotion to humanity is Christ-like. It is the height of folly on our part to fail to avail ourselves of the physicians' skill and wisdom, which come from God. For, as most physicians gladly recognize, they simply set free and co-operate with the "healing power of Nature," which is but another name for the healing power of God.

There is no basis, then, for the notion that religion and medicine are in any way opposed to one another. To be sure, there are some doctors who are materialists and skeptics, so concerned with physical symptoms and physical treatment that they fail to allow for psychological and spiritual factors and for the inter-action of body, mind, and spirit. And on the other hand, there are some religionists who so overemphasize the function of faith that they ignore the physical facts. Bacteria and infection, for instance, are physical facts which it is not faith but folly to overlook. Religion and medicine should go hand in hand, as they did in the person of "Luke, the beloved physician," and as they have in many a Christian physician since. I am thinking especially of such men as Sir Wilfrid Grenfell, the beloved physician and evangelist of Labrador, and the late Rudolph Teusler, whose monument is St. Luke's International Hospital and Medical Center in Tokyo, the greatest hospital in the Orient and a standing witness to the healing ministry of Christ. And I am thinking also of that gifted Alsatian, Albert Schweitzer, one of the most versatile men of our generation, a philosopher, theologian, artist, and musician of the first rank, who took up the study of medicine in mature life, gave up his pastorate, and went as a medical missionary to the Congo jungle in order that he might redress some of the injustice which the white man had inflicted upon the black man. To quote his own words, "I wanted to be a doctor that I might be able to work without having to talk. * * * This new form of activity I could not represent to myself as being talking about the religion of love, but only as an actual putting it into practice." [I have heard some people express surprise that our former curate, Judson Leeman, should have undertaken a course of study to fit himself as a medical missionary to the Orient. I don't know why. There is ample precedent in the annals of the Christian religion for the combination of priest and physician.]

And if religion and medicine are not in any way opposed, neither is spiritual healing in any way inconsistent with physical healing. The aim of physical healing is wholeness, and the aim of spiritual healing is holiness—and there is more than an etymological connection between the two. St. John wrote to his well-beloved Gaius, "Beloved, I wish above all things that thou mayest prosper and be in health, even as thy soul prospereth." And St. Paul wrote

to the Thessalonians: "I pray God your whole spirit and soul and body be preserved blameless unto the coming of our Lord Jesus Christ."

Strictly speaking, I suppose we ought to recognize that there are three planes on which the healing process may be carried out—the physical, the mental, and the spiritual. "Medicine has to do with the body, psychotherapy with the soul, and spiritual healing with the spirit." And ideally these three should always work together. An experienced priest of our communion has put it very well in these words: "As a plain matter of fact medicine as medicine may heal the body, or rather may clear away obstacles and so enable the body to heal itself. Psychotherapy as psychotherapy may untangle the processes of men's minds and bring order out of mental confusion, but neither medicine nor psychotherapy can heal men's spirits nor restore harmony among the various parts of their natures. Let medicine and psychotherapy do what they can and will, room will still be left for spiritual healing, *i. e.*, for the healing of men's spirits and for the adjusting of their minds and bodies to their spirits."

There is ample evidence that the truth of this is coming to be recognized more and more generally by members of the medical profession. The recent book of Dr. Alexis Carrel, "Man Unknown," is a case in point. Physicians today are far more ready than they were a generation or two ago to recognize in the clergy their natural allies in ministering to the sick. They are far more ready than formerly to recognize that the clergy bring what they cannot bring, the assurance of Divine love and care and forgiveness. As a devout Roman Catholic physician once said to me, "We do the best we can; but when we have done our best, we have to recognize that Someone else is running the show."

And the clergy on their part are learning new techniques in their approach to the sick. There was, after all, some justification for the old-fashioned prejudice which many doctors had about admitting the clergy to the sick-room. The old idea that sickness is a Divine visitation, which used to be so prominent in the Prayer Book before its last revision, is now obsolete. So also, I hope, are long faces and gloomy looks in the presence of the invalid. The priest has learned to make his every gesture and tone of voice breathe faith and hope and courage.

I believe in prayers and intercessions for the sick. I believe in prayer with the laying on of hands, the prayer being adapted to the physical and spiritual condition and needs of the sick man. I believe in the apostolic rite of unction or annointing with oil, not as a preparation for death, but as the outward and visible sign of spiritual healing. Above all, I believe in the communion of the sick, because I know that in this sacrament we may not only have fellowship with the sufferings of Christ, but also lay hold on Him by faith and experience His forgiveness and healing power. I have seen too much evidence of His healing power and saving grace ever to doubt the reality of spiritual healing.

Yet I know, too, how easy it is to fall into a superstitious view and magical notions of such healing, as if God must grant us our heart's desire when and as and how we wish it. After all, it is the fulfilment of *His* will and not ours that we seek, and His will extends beyond the vicissitudes of this life into the life of the world to come. We shall be content to leave the issues in His hand. We shall be content with what measure of bodily health He sees fit to grant. We shall not lose faith because bodily healing does not always result from spiritual healing. When the late Mr. James Moore Hickson, the famous spiritual healer of the English Church, was in New York City some years ago, he was asked to visit and minister to a blind man. Some time afterward the man's daughter was asked how her father was, and replied: "He is still blind, but now he does not mind it." That was not a case where spiritual healing had failed. The true victory of faith is to be taken over and possessed by Christ, and to be moulded and used as the instrument of His will. For after all, bodily healing was not the most important feature of the ministry of our Lord. And bodily health is not the highest end of man. The highest end of man is to know God through Christ, and to love and serve and enjoy Him for ever and ever.

(For some of the teaching in the latter part of the sermon, the preacher acknowledges his indebtedness to a little pamphlet by the Rev. J. Wilson Sutton, D.D., Vicar of Trinity Chapel, New York, entitled "Spiritual Healing.")

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Oklahoma State Medical Association

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McAlester, Oklahoma

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McAlester, Oklahoma

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in The Journal the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the Editor, McAlester Clinic, McAlester, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes of addresses, births, deaths and weddings will be gratefully received.

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EDITORIAL

THE COUNCIL

A called meeting of the Council was held at the Aldridge Hotel, Shawnee, January 22nd, and although the weather was very unfavorable, permitting only a few members of the Council to be present, some very important business was transacted.

By action of the Council the time for payment of dues, before becoming delinquent, was extended to March 15th.

There was very liberal discussion of the proposal to place the United States Public Health Service under a new bureau to be known as a Department of Public Welfare. Feeling that this would not be of advantage a resolution (which you will find following this editorial), was adopted and the suggestions relative to its distribution have been carried out.

The Council also discussed the subject of Post Graduate Medical Teaching and an arrangement by virtue of which we might be able to interest the Commonwealth Fund in assisting us in carrying out a very extensive post graduate course in obstetrics was discussed. Early in January Dr. Henry H. Turner, Chairman of the Committee on Post Graduate Medical Teaching had a meeting of his Committee, in Oklahoma City, and the details of the proposed course were presented and discussed and they (the Committee) are now at work on very definite plans, hoping to receive assistance from this Fund. The plans will be definitely made and presented to the Board of this Commonwealth Fund in the spring and if they are accepted this very excellent course will be instituted and will be entirely under direction of the State Medical Association.

Members of the Committe on Public Policy and Legislation were present at this Council meeting and presented in detail their activities. They were given the unanimous support of the Council and are certainly to be commended for the excellent work they are doing and the amount of time they are sacrificing from their personal business to look after this important phase of the work of the Association. This Committee again requests that the individual doctors throughout the state show their interest by keeping in touch with their legislators from their respective counties and help in this way to put over this most important program.

It is evident that more work of a constructive nature is being done by the Committees of the State Medical Association at this time than ever before and their accomplishments will only be limited by the amount of cooperation received from the individual member.

The resolution concerning the Public Health Service follows:

"WHEREAS, information has reached the officers of the Oklahoma State Medical Association to the effect that influences at Washington are at work to divorce the United States Public Health Service from the Treasury Department and make it a bureau in a proposed Department of Pub-

lic welfare of the National Government, and

WHEREAS, such a change in the administration of public health service on the part of the National Government would tend to cause the several states to convert their health departments into bureaus of the Departments of Public Welfare, and

WHEREAS, public health service, being preventive in character, conflicts so radically with public welfare service which is curative in character, that a single administrative head would not be able to develop the most advantageous policies and programs in the separate fields of activities, and

WHEREAS, the highly scientific and technical nature of preventive medicine make imperative to the best interests of the people a public health service administered by a competently trained physician, experienced in executive administration, and

WHEREAS, the United States Public Health Service as a bureau of the Treasury Department, which exercises only budgetary supervision over its activities, has functioned in a universally satisfactory and efficient manner, and therefore be it

RESOLVED, that the Council of the Oklahoma State Medical Association in special session assembled, vigorously opposes the proposal of making the United States Public Health Service a bureau in the National Government other than in the Treasury Department, and be it further

RESOLVED, that the Association strongly recommends in the event of any reorganizing process affecting the United States Public Health Service, the creation of a Department of Public Health in the National Government to include all activities in the field of preventive medicine now performed by the various departments, and be it further

RESOLVED, that copies of this resolution be transmitted to the President of the United States, to each Senator and Representative in Congress, from Oklahoma, to the Surgeon General of the United States Public Health Service, to the Oklahoma State Health Commissioner and published in THE JOURNAL of the Oklahoma State Medical Association."

LEGISLATIVE FUND

County	Allotment	Amt. Paid
Adair	$ 40.00	
Alfalfa	70.00	
Atoka-Coal	30.00	$ 30.00
Beckham	140.00	130.00
Blaine	90.00	
Bryan	240.00	170.00
Caddo	240.00	90.00
Canadian	230.00	75.00
Carter	260.00	130.00
Cherokee	30.00	
Choctaw	70.00	60.00
Cleveland	270.00	
Comanche	190.00	
Cotton	90.00	
Craig	150.00	80.00
Creek	330.00	190.00
Custer	230.00	210.00
Garfield	420.00	250.00
Garvin	150.00	150.00
Grady	230.00	160.00
Grant	40.00	
Greer	110.00	
Harmon	80.00	
Haskell	60.00	40.00
Hughes	170.00	140.00
Jackson	160.00	120.00
Jefferson	110.00	
Johnston	10.00	
Kay	320.00	290.00
Kingfisher	90.00	
Kiowa	170.00	
Latimer	40.00	
LeFlore	160.00	100.00
Lincoln	150.00	50.00
Logan	200.00	100.00
Major	30.00	
Marshall	50.00	
Mayes	110.00	10.00
McClain	60.00	
McCurtain	70.00	
McIntosh	60.00	60.00
Murray	110.00	
Muskogee	520.00	60.00
Noble	40.00	
Nowata	50.00	50.00
Okfuskee	150.00	100.00
Oklahoma	2740.00	1065.00
Okmulgee	280.00	210.00
Osage	220.00	220.00
Ottawa	310.00	90.00
Pawnee	100.00	90.00
Payne	250.00	160.00
Pittsburg	350.00	200.00
Pontotoc	300.00	300.00
Pottawatomie	330.00	160.00
Pushmataha	75.00	40.00
Rogers	120.00	60.00
Seminole	320.00	110.00
Sequoyah	10.00	10.00
Stephens	220.00	60.00
Texas	50.00	20.00
Tillman	100.00	110.00
Tulsa	1980.00	1200.00
Wagoner	40.00	40.00
Washington	250.00	240.00
Washita	120.00	
Woods	190.00	140.00
Woodward	260.00	150.00

NOTE—Corrections and additions to the above list will be appreciated.

Editorial Notes—Personal and General

DR. A. L. DAVENPORT, Holdenville, has been appointed Health Superintendent of Hughes County, to succeed Dr. C. S. Wallace, Holdenville, effective December 1st, 1936.

DOCTORS LINDSEY, JOHNSON and SHIRLEY, Pauls Valley, are constructing a new hospital.

DR. W. P. LONGMIRE, Sapulpa, has been removed to his home from the Morningside Hospital, Tulsa, where he underwent an operation for appendicitis. He is making a satisfactory recovery.

DR. CHARLES D. DAVIS, Oklahoma City, has retired from the Lain-Eastland Clinic with which he has been connected for many years.

DR. BASIL A. HAYES announces the opening of his Clinic of Urology at 625 N. W. Tenth Street, Oklahoma City.

Dr. W. F. HAYS, Claremore, is reported suffering from a fractured hip.

DR. GEORGE KIMBALL, Oklahoma City, announces the opening of offices at 404 Medical Arts Building.

DRS. L. R. PACE and CLAUDE S. CHAMBERS, Seminole, are opening a clinic to be known as the Pace-Chambers Clinic.

DR. RALPH BOWEN, Oklahoma City, addressed a meeting at Nacogdoches, Texas, January 13th. His subject was on "The Practical Management of Allergic Problems as Seen in General Practice." On January 27th he spoke on the "Asthmatic Child," at a meeting in Parsons, Kansas.

DR. CHAS. M. PEARCE, State Health Commissioner, has returned from Memphis, Tenn., where he was summoned for a conference with Dr. W. K. Sharpe, assistant surgeon general for the United States Public Health Service. The conference was to consider venereal disease control.

DR. S. H. WILLIAMSON, Duncan, announces his removal to Bethany, Oklahoma, where he will continue his practice of medicine.

DR. G. S. BARGER, Purcell, has moved to El Paso, Texas, where he will do army medical service in the Fort Bliss area.

DR. M. S. GREGORY, Oklahoma City, is reported very ill from a kidney and heart condition. He is now confined to the Veterans Hospital, Waco, Texas, where his condition is reported very grave.

SECTIONAL MEETING OF THE AMERICAN COLLEGE OF SURGEONS

Information has just been received from Dr. Malcom T. MacEachern, associate director of the American College of Surgeons, Chicago, Ill., that the next sectional meeting of the American College of Surgeons will be held in Denver, Colorado, on April 7, 8 and 9 next. The states of Colorado, Utah, Wyoming, Nebraska, Kansas, Oklahoma, New Mexico, Arizona and Western Texas will participate in the meeting.

Dr. MacEachern assures us that there will be an interesting meeting which is now being arranged by an excellent committee on local arrangements under the chairmanship of Dr. Casper F. Hegner.

It is hoped that as many Fellows of the College in the state as can will make an effort to attend this meeting which I am sure they will find interesting and beneficial.

Pat Fite, M.D., Secretary,
Oklahoma State Executive Committee.

RESOLUTIONS

DOCTOR H. C. LLOYD

WHEREAS, our fellow member and friend, Dr. H. C Lloyd, of Hobart, Oklahoma, who was a member of our Society, was called from us on November 16, 1936, and;

WHEREAS, Dr. Lloyd for many years has been a member of this Society and rendered through it most valuable service to his profession in the county, and has been recognized by the doctors of this county and state as one of the most beloved members of the medical profession;

THEREFORE BE IT RESOLVED, that we receive this information with deep sorrow and regret, realizing our loss in both counsel and advice, and

BE IT RESOLVED, that we extend to the family our deepest sympathy and assure them of our sincere desire to share with them this burden of loss, and

BE IT FURTHER RESOLVED, that a copy of this resolution be made a part of the minutes of this meeting, that it be published in the Journal of the Oklahoma State Medical Association, and that a copy be sent to the family and to the press of this city.

Signed: W. P. Brown, M.D.

OBITUARIES

DOCTOR H. C. JOHNSON

Dr. H. C. Johnson was born in Lovettsville, Va., on December 12, 1869, where he grew to young manhood. After completing the common high school and college courses, he took the study of medicine, attending the Maryland Medical College in Baltimore. He was president of his class. After finishing he moved to Antlers, Oklahoma, in 1904.

He was held in high esteem by all who knew him, and he held a large practice at Antlers.

He has served as president of the Pushmataha County Medical Society and at the time of his death was a member of the Board of Censors for this county.

His funeral was held at the First Presbyterian Church. The Masons of Antlers conducted the Masonic ritual at the grave.

RECENT DEATHS

(Insufficient data available for obituary.)

Dr. D. Armstrong, Durant, January 28, 1937.

Dr. William Kenneth Hudson, Hartshorne, November 29, 1936.

Dr. Charles S. Neer, Vinita, January 22, 1937.

Dr. A. W. Nunnery, Chickasha, January 10, 1937.

Dr. DeWitt Stone, Sayre, January 16, 1937.

News of the County Medical Societies

DR. C. B. SULLIVAN, Cordell, was elected president of the Western Oklahoma Association at their quarterly meeting held in January at Clinton. Dr. H. K. Speed, Jr., Sayre, was elected vice-president; Dr. C. Doler, Clinton, secretary-treasurer.

Their program consisted of addresses by Drs. R. M. Howard and Philip M. McNeill, Oklahoma City, on "Goiters" and "Pneumonia," respectively. A program committe was selected for this group with Dr. Lealon Lamb, Clinton, as chairman. The next meeting will be March 9th.

OKLAHOMA County Medical Society, at their meeting in December, 1936, elected the following officers and board of directors for the current year: President, Dr. Philip M. McNeill; vice-president, Dr. C. J. Fishman; secretary-treasurer, Dr. Henry H. Turner; board of directors, Doctors P. M. McNeill, C. J. Fishman, Henry H. Turner, Rex Bolend, H. Dale Collins, Carroll M. Pounders, J. C. MacDonald, Wann Langston, L. J. Starry.

PAWNEE County Medical Society reports a meeting at the Pawnee-Ponca Hospital in Pawnee, January 14th, at which time Dr. James Stevenson, dermatologist of Tulsa, gave an interesting and instructive talk on "Diseases of the Skin" and stressing the use of radium and x-ray on certain stubborn diseases.

The following officers were elected to serve Pawnee County for 1937: President, Dr. J. L. LeHew, Pawnee; vice-president, Dr. H. B. Spaulding, Ralston; secretary, Dr. L. P. Hetherington, Pawnee; censors, Drs. M. L. Saddoris, Cleveland; J. L. LeHew and E. W. LeHew, both of Pawnee.

News Notes of Woman's Auxiliary

Cleveland County

This month our one accomplishment is: We have made arrangements with radio station WNAD, the university of Oklahoma, Norman, to broadcast a health talk by Dr. Guy H. Williams, County Health Officer of Cleveland county. The talk will be given on January 13th from 2:45 to 3:00 p. m. and will be arranged in such a way as to be of interest to senior high school students as we are informed that at that time there are three hundred listeners' groups established over the state for the afternoon broadcast.

We have been offered time February 2nd for another broadcast and we are asking for the cooperation of the Cleveland County Medical Society so that there will be no misinformation sent out over the air and no medical ethics imperiled.

Our members are doing considerable welfare work and health educational work through other societies to which they belong.

Oklahoma County

Report for October, November and December: The Woman's Auxiliary to the Oklahoma County Medical Society opened their year with a registration tea October 2, 1936, at which time old members re-registered for the coming year and many new members were welcomed. The actual work of the Auxiliary began with a meeting October 21, where plans were made for the entertainment of wives of the visiting doctors at the annual meeting of the Oklahoma City Clinical Society. Sewing and scrap books for the Crippled Children's Hospital occupied the morning hours until luncheon was served.

During the meeting of the Clinical Society our auxiliary members were hostesses to two parties, one of which took the form of a trip to parts of interest in Norman, our university city, and ending with a tea at the spinning wheel. The Auxiliary members at Norman were joint hostesses at this affair and very capably managed the tour of Norman and the tea. On Wednesday night Dr. and Mrs. J B Eskridge opened their lovely new home to our visitors where we entertained with an amateur hour, a take-off on Major Bowes.

On November 25 we met again to sew for the hospital and were quite proud of the fact that at the end of that meeting we had completed fifty-three garments besides our scrap books for the two months. In addition we provided three large families with food not only for their Thanksgiving dinner but with enough for the four days that the children were home from school and therefore not receiving hot lunches.

We have no meeting in December and do not meet again until January 27. However, we feel that we have accomplished a great deal with the two meetings we have had and are looking forward to considerable accomplishments during January, February, March and April.

Pittsburg County

Organized in April, 1936, the twenty members of the Woman's Auxiliary of Pittsburg County Medical Society have been represented at both state and national medical meetings and have assumed responsibility in several local health projects.

Raising funds through benefit bridge parties and by placing jars in local drug stores for contributions, the unit has assisted by providing fruit and nursing for several contagious cases and by placing a special "cod liver oil" fund at the disposal of the county judge for use in crippled children's cases where this treatment was prescribed.

This month the unit is launching its biggest project, the sponsorship of a civic-wide movement with its goal the purchase of an "iron lung" for the use in emergencies in this section.

The unit has placed "Hygeia" in all of the high schools of the county and in McAlester public library.

The auxiliary holds regular monthly meetings on the first Tuesday, having them customarily in a social manner.

Tulsa County

Report of activities of Auxiliary to Tulsa County Medical Society from October, 1936, to January 1, 1937:

October 6, membership tea. Paid membership of one hundred and forty-three, which was an increase of fifty-four since last year. Sixty present at this meeting. Children's hour at Morningside Hospital continued every Wednesday. Twenty-five books added to library at St. John's Hospital for nurses and patients.

November meeting, luncheon. Fifty-five members present. Mrs. H. D. Ruprecht, member of Auxiliary and also physician, gave talk on "Public Education in Social Diseases." Ten new members present. Contest held to help members become better acquainted.

December meeting, luncheon. Forty present. Rummage sale held—proceeds $43.50 to be spent for philanthropic work. Thirty-six dollars given to milk fund for undernourished babies. Forty-eight garments made and given to Public Health Association. Thirty-six bibs made and given to Nursing Home. Fifteen subscriptions to "Hygeia"—six to be given to local schools. Plans made for Health Poster contest, for which prizes will be awarded in local schools.

ABSTRACTS : REVIEWS : COMMENTS *and* CORRESPONDENCE

ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D., F.A.C.S.
717 North Robinson Street, Oklahoma City

Interesting reprints which have come to my desk recently:

"Relief of Pain by Peripheral Nerve Block in Arterial Diseases of the Lower Extremities," Beverly C. Smith, M.D., New York. Annals of Surgery, November, 1936.

"An Investigation into Wiring of the Spinous Processes as a Means of Internal Spinal Fixation," Arthur D. Kurtz, M.D., and Morris T. Horwitz, M.D., Philadelphia. Archives of Surgery, October, 1936.

"Transportation of the Injured, with Particular Reference to Fractures of the Extremities," Robert H. Kennedy, M.D., New York. Published by American College of Surgeons.

"Acute Osteomyelitis: Etiology, Symptoms, Diagnosis and Treatment of Eighty Cases," Joseph I. Mitchell, M.D., Memphis, Tenn. Southern Medical Journal, June, 1936.

"Bone Syphilis," J. S. Speed, M.D., and H. B. Boyd, M.D., Memphis, Tenn. The Southern Medical Journal, April, 1936.

"Operative Reconstruction of Malunited Fractures About the Ankle Joint," J. S. Speed, M.D., and H. B. Boyd, M.D, Memphis, Tenn. Journal of Bone and Joint Surgery, April, 1936.

"Bone Tumors," Willis C. Campbell, M.D., Memphis, Tenn. Surgery, Gynecology and Obstetrics, January, 1936.

"Repair of the Ligaments of the Knee: Report of a New Operation for Repair of the Anterior Crucial Ligament," Willis C. Campbell, M.D. Memphis. Tenn. Surgery, Gynecology and Obstetrics, June, 1936.

Biological Basis of Surgery, Particularly Orthopedic Surgery. George W. Hawley. American Journal Surgery, XXXI, 438, March, 1936.

This article, written on a subject little understood and by a surgeon of great experience, should be read in detail by every surgeon desiring a deeper insight into the relation of anatomy, physiology, and pathology to form, function, and tissue changes incident to disease and trauma.

"When surgical problems are approached from the basis of anatomy function or abnormal form and function, only one side of a polygonal problem is seen. Anatomy represents an existing standard of form, without appreciation of the processes producing it and those ceaselessly at work to effect change of form.

"The same applies to physiology and pathology; representing existing phenomena of normal and pathological functions.

"The combination of anatomy, physiology, pathology, including their offspring, physiological chemistry, bacteriology and their many first and second cousins; the careful weighing, assaying and grouping of all these is not enough to complete the picture. Their composite grouping and fusion does not make human biology, biological factors, processes and laws as applied to the human organism.

"Biology is defined as, 'the science of life or living organisms,' but to make the definition inclusive would be to paint a picture of all living things, both vegetable and animal. For convenience biology may be divided into three divisions, plant, mammalian and human. Human biology might be defined as a combination of all those factors, processes and potential forces which are continuously working in the human organisms to regulate and determine both function and form in normal and abnormal states, from intra-uterine birth through the period of growth, adult activity and decline.

"When an approach is made to a surgical problem the operator should have in mind the biological factors as well as the anatomical, the physiological and the pathological. In order to pattern surgical relief in accordance with the biological laws of purpose and design, he should make the following inquiries: (1) the biological processes which are at work, (2) what structures are involuting and which evoluting, (3) which are potentially weak and more frequently damaged and which are strong, (4) what attack is best suited to one in contrast to the other, (5) what is the relationship of form to function and the process which produced the form, (6) what are the processes of defense and repair, (7) what is the particular relationship of deformity to disability, (8) what are the processes affecting adjustment of function to deformity. Methods of surgical relief have been automatically guided and controlled to accord with biological laws, but not always do methods fit these days. Success and failure have helped to show the way, for the history has been groping and stumbling in the dark to find the way. The man who first opened an abscess made a great discovery, but he was unaware of the full meaning. He discovered a biological process the importance of which did not become apparent until Lister exposed it to the light."

Treatment of Sprains by Interligamentary Injection of Novocaine. Rene Leriche and G. Arnulf. American Journal Surgery, XXXII, 45, April, 1936.

The authors advocate local injections of novocaine into the ligaments of joints which are the seats of injuries or post-operative strains. They believe that a sprain is the reflex consequence of trauma, and specifically is the result of a distortion of the nervous apparatus present in the articular ligaments. The technique is injection of ten to twenty cubic centimeters, according to the importance of the articulation, of a one per cent solution of novocaine into the region of the traumatized ligament at the spot of maximum tenderness. Care should be taken to inject the ligament itself. In the

case of the hip, a long, flexible needle is carried to the femoral neck and withdrawn about one centimeter, and the injection is then made. In this manner more rapid and complete restoration of function can be obtained. Best results are obtained in cases of simple sprain with articular impotency and the after-effects of sprain, such as pain and muscular atrophy, and in cases of operative sprain of ligaments following orthopaedic operations or manipulations.

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EYE, EAR, NOSE AND THROAT

Edited by Marvin D. Henley, M.D.
911 Medical Arts Building, Tulsa

"Alcohol" Amblyopia, Pellagra, Polyneuritis. Report of Ten Cases. Frank D. Carroll, M.D., New York. Archives of Ophthalmology, December, 1936.

A review of ten cases and a brief resume tends to prove that alcoholic polyneurtis and the alcoholic type of pellagra are caused by deficiency in diet.

In 1928 and 1929 Shattuck and Minot, respectively, thought avitaminosis to be of significance in alcoholic polyneuritis. In 1930 and 1933 Wechsler reported cases of polyneuritis which showed great improvement when given the proper diet. Spies and De Wolf permitted ten patients with the alcoholic type of pellagra to take in connection with a well balanced diet and autoclaved yeast, whiskey each day. All ten recovered. A like procedure was carried out by Straus, with the addition of vitamin B concentrates and liver extract to the proper diet. Recovery as complete as the group that was given no alcohol was noted.

Joliffe, Colbert and Joffe by Cowgill's calculation of the vitamin B requirement of man, found that out of forty-two alcoholics, the twenty-six who had polyneuritis had an insufficient intake of vitamin B with the reverse being true of the remaining sixteen. Wechsler, Jervis and Potts experimented with monkeys and cats and noted a marked change in the nervous system of the animals kept intoxicated and fed a diet deficient in vitamin B.

Case 1. A white man, age 35, accustomed to drinking from one to three pints of whiskey daily and smoking a package of cigarettes a day, reported poor vision. He had had severe vomiting and diarrhea was present, later hallucinations developed. His diet was found to be very inadequate. His condition improved slowly after he was given an anti-pellagra diet, high in vitamin B and B2, and intramuscular injections of liver extract. Sixteen months after the onset his physical condition was excellent, his eyesight almost normal but he had a slight residual mental impairment.

Case 2. A thirty-two year old negro man who drank a pint of whiskey and smoked a few cigars daily, had three visual hallucinations. Vision in the right eye was 18/200 and in the left eye 10/200 . Upon examination of the skin typical cutaneous lesions of pellagra were found. After the anti-pellagra treatment the dermatitis disappeared. Polyneuritis developed during treatment, which is not uncommon. A year later vision was 20/20 in both eyes.

Case 3. A negress, twenty-five years old, drank about a quart of whiskey and smoked a few cigarettes daily. Impaired vision and cutaneous lesions of pellagra on the hands, elbows and vulva, resulted from her very inadequate diet.

Case 4. Symptoms of a forty-four year old taxi driver, a heavy drinker and smoker, were diagnosed as pellagra, polyneuritis and Korsakoff's psychosis. He also had impaired vision. The dermatitis cleared up in four weeks, the polyneuritis in eight weeks, and the vision in the right eye remained at 20/200 for six months.

Case 5. Living mostly on whiskey and cigarettes, this man, a janitor, showed mental impairment, edema of the legs and thighs, cutaneous lesions of pellagra and mild polyneuritis. The vision of the right eye was 20/200 and in the left eye 8/200. Treatment consisted of a "high vitamin diet, brewer's yeast, wheat germ and vegex by mouth as well as vitamin B, concentrate and liver extract given intramuscularly." He improved gradually. In three months his left eye, with corrections, was 20/80 and the right eye 20/40.

Case 6. The diagnosis of a thirty-one year old negro, who daily drank over a quart of gin and smoked a few cigarettes, was pellagra, polyneuritis and alcoholic encephalophy. He gradually improved mentally and physically. His eyesight improved from 15/200 right and 20/40 left, to 20/20 right and 20/30 left.

Case 7. A thirty-five year old patient who drank a pint or two of whiskey and smoked a package of cigarettes every day, also had pellagra associated with alcoholism. He had the typical central field defects of alcohol amblyopia.

Case 8. A thirty-four year old woman had hallucinations caused by excessive drinking. She also smoked approximately a package of cigarettes a day. Alcoholic polyneuritis and Korsakoff's psychosis was the diagnosis. After four weeks the knee and ankle reflexes were still absent, a feeling of numbness in the extremities and some loss of memory regarding recent happenings persisted. Examination showed a controcecal scotoma in both eyes which became smaller after two weeks.

Case 9. Chronic alcoholism, polyneuritis, nutritional edema and pellagra resulted from the daily consumption of one to four pints of corn whiskey by a middle aged white man. He smoked a package of cigarettes a day. He had had practically nothing else, except white bread and soup. His vision was also impaired.

Case 10. Having been a heavy drinker for fifteen years and smoking from one to two packages of cigarettes a day, this thirty year old white man was not alarmed about his amblyopia, because after each attack the blurred vision usually disappeared. The vision in each eye was 20/200 and with one week of anti-pellagra diet his vision had improved to 20/50 in the right eye and 20/100 in the left eye. He also had stomatitis, diarrhea, dermatitis and polyneuritis which generally accompanies pellagra.

In the preceding ten cases all of the patients had had inadequate diets.

Practical Points of Submucous Septum Resection: Pitfalls and Corrections. Dr. Alexander F. Laszlo, New York. The Laryngoscope, November, 1936.

Two thousand submucous resections done in the nose and throat department of the New York Post-Graduate Hospital are reviewed. An attempt is made to answer why a more universally good result is not obtained from this operation. He lists the operation as second in incidence to that of tonsillectomy.

Lack of success is credited to imperfect diagnosis, improper amount of obstruction removed, complications and post-operative neglect. Important consideration should be given to the individuality of the patient, to climatic conditions and especially

to the preparation of the patient for a submucous, which the author considers a major operation. The position of the patient, the anaesthetic used and the possible reactions in some cases, is given in detail. The instruments necessary, whether few or many, are those which the individual surgeon chooses. An injection of one per cent novocaine with adrenalin before the incision is made aids the anaesthesia. The nostrils should be sterilized and the incision made to follow the deviation of the septum. Separating the wrong cleavage, using too little adrenalin or tearing the mucous membrane will cause bleeding. A tear on one side does not cause serious trouble but if on both sides the result is a permanent perforation which is difficult to heal. In case of broken instruments that cannot be located an x-ray should be taken at once. All packings and any small pieces of bone or cartilage must be carefully cleaned out. Of paramount importance is not removing too much bone and cartilage, since this will prevent good results and may cause the bridge or the tip of the nose to drop.

After the operation a thorough check up for fragments or plugs should be made, the nose packed and the patient put to bed. The packing should not remain over twenty-four hours. Slight bleeding sometimes occurs shortly after the operation and may continue for a few hours, but it is usually stopped by ice compresses on the nose and placing the patient in a sitting position. In a few cases severe bleeding, sometimes starting from the sphenopalatine artery, necessitates not only tight packing, but injections and transfusions. After the twenty-four hour pack is removed bleeding may occur but will probably stop if the patient is quiet, with head bent forward. Secondary hemorrhages may occur any time within two weeks after the operation and if serious, examination of the blood should be made. To prevent the distress caused by hematomata, which occasionally occurs, an opening should be made in the original incision or in the floor of the nose. Septal abscesses should be surgically treated and a nasal irrigation used and free drainage assured.

Ear infection, acute throat infection, anosmia temporary or permanent and meningitis are some of the complications that may arise after a submucous septum resection. The patient should be given careful post-operative observance for a few weeks.

Submucous septum resection should not be done on children, unless nasal difficulties are of a serious nature and then only the least possible amount of work done. If a patient has an acute infection, there should be no operation.

The Staphylococcus in Relation to Sinusitis, Bronchitis and Bronchiectasis. Fletcher D. Woodward, M.D., University, Va., Archives of Otolaryngology, December, 1936.

Streptococci, pneumococci, influenza bacilli, fungi and spirochetal organisms have greatly overshadowed the staphylococcus, as a latent manace to the upper respiratory region, regardless of the large number of staphylococci reported.

Cultures taken from sixty-four patients suffering with a chronic low grade sinus infection, showed the presence of hemolytic staphylococci in seventy-five per cent of the cases and non-hemolytic staphylococci in seventy-two per cent.

These results should bring about more zealous inquiries of this organism. Ample evidence is available to apparently rank staphylococci only as hemolytic and non-hemolytic and points to the presence of only one toxin. From results obtained by animal experimentation one now has at his disposal for clinical use both the toxoid and the antitoxoin the same as in diphtheria and tetanus. Variability of the titer is discussed. The author agrees with Dolman regarding the recovery from staphylococcic infection relative to the concentration of antitoxic antibodies in the blood.

The injection of toxoid will cause the rise in titer, while the injection of staphylococcus vaccine will not accomplish this. If staphylococci are more prevalent in acute sinusitis than streptococci, more anxiety is felt, since the normal body resistance, as a rule, is not as high toward resisting the former as the latter.

Because of the many serious complications (i. e. orbital abscess, osteomyelitis, thrombosis of the cavernous sinus, meningitis, abscess of the brain and septicemia) that may follow acute staphylococcus sinusitis, early bacteriologic smears and cultures are most important. When toxemia is present, antitoxin serum can be given for neutralization and if transfusion is advisable the donor's blood should be the highest antitoxin titer obtainable for staphylococcus. The author feels that having followed this course of treatment that complications were prevented in some cases and greatly mitigated in others.

The patient who complains of a post-nasal discharge, a stuffy nose, perhaps headache, neuralgic pain, asthenopia and frequently associated sore throat and expectoration, the author diagnoses a chronic hyperplastic sinusitis. These low grade chronic sinus infections have many times accompanying or following them chronic pharyngitis or laryngitis, chronic bronchitis and bronchiectasis. There are few definite clinical findings and specific treatment is lacking. Probable underlying factors mentioned are: improper aeration and drainage resulting from mechanical obstruction, allergy or some virulent infection. Each case is an individual problem. The surgeon must use his best judgment as to the line of treatment to be followed, varying from simple colloidal silver packs to simple and radical surgery of one or more sinuses with the many various procedures in use between these two extremes.

The associated chronic sinus infection and chronic non-specific lung infection are discussed briefly. The author feels it is quite important when pure staphylococcus is found in both the sputum of the bronchiectatic patient and the same found in the region of the spheno-ethmoid. He considers the presence here, in a case of this kind, of streptococcus and others as being secondary. In addition to routine methods for treatment of this condition he urges the use of staphylococcus toxoid and antitoxin.

Retinitis Exudativa externa. (Coats Disease.) A Contribution to Its Anatomical Aspects. (Retinitis Exudativa Externa. Contribucion a se Estudio Anatomico.) J. A. Sena, Buenos Aires. Arch. de Oftal. de Buenos Aires, Vol. IX, p. 387, 1934. Abstracted by E. E. Cass and Published in the December Issue, 1935, of the British Journal of Ophthalmology.

Sena says that although anatomically and clinically, the retinitis exudativa of Coats, the retinal degeneration with miliary aneurysms of Leber and the retinal angio-gliomatosis of von Hippel are identical processes, characterized by alterations in the retinal vessels and the presence of exudates, they differ considerably in their aetiology and more especially in their pathology.

In the retinal degeneration with aneurysms the vascular alterations are primary to those degenerative changes occurring in the retina; whilst in Coats' disease there is a true inflammation of the retina originating from toxic emboli, and the vascular alterations are secondary.

Again, according to Lindau and Juris, the angiogliomatosis of von Hippel is associated with angiomata and cysts in the central nervous system, numerous organs and in the skin, and is not, therefore, a local ocular disease, but a manifestation of alterations in the vascular system.

The author quotes many references to cases of these conditions which have occurred from time to time in the literature.

The retinitis of Coats is usually unilateral; its progress is slow; it usually occurs in young people of less than twenty-five years old, and the male sex is more commonly affected.

In the early state of this disease there are small white exudates, which later become yellow, and over which there is superficial swelling; these exudates become confluent, haemorrhages occur, and finally detachment of the retina may supervene. Pain is produced by increased tension, and this condition is sometimes diagnosed as glioma.

The exudates most frequently occur in the peripapillary region. Coats stated that the alterations in the retina were caused by haemorrhages, which, originating in the external layers, had become organized. Leber confirmed these findings of Coats.

There are many changes in the retina, which is considerably thickened; there is much sero-fibrinous infiltration, and cells carrying fat granules are formed in the pigment layer; cholesterin crystals are found among the fat cells. Connective tissue is laid down between the retina and the choroid; the choroid does not participate in this process.

In the vessels is a proliferation of endothelium, accompanied by much stretching and dilation until true aneurysms are formed.

The retinal detachment is caused by sero-fibrinous exudate, and the pigment layer is destroyed. Coats gave the name "ghost cells" to poorly coloured bodies which are present in the sub-retinal exudate, and contain small pigmented granules; the author considered them to be swollen leucocytes; according to Leber they are the remains of the degenerated pigment epithelium, and other authors think they are cells from the reticuloendothelium system.

In reality, it is difficult to ascertain the precise pathology of these cases, as an exact histological examination has only been carried out in an advanced state of the disease.

In a case that the author himself discovered, he was able to observe the anatomy and histology in an eye excised for secondary glaucoma. The child was four years old.

History: At the age of one and one-half years the child had an inflammatory process in both eyes, and after, it was noticed that the right eye was divergent. He was brought to the author, as for one month his eye had been irritable and painful. The child was ill and had lost weight. Both parents were healthy.

On examination the right eye showed slight ciliary injection. The cornea was clear, and a detachment of the retina was present. The retina was swollen and yellow in colour; the retinal vessels did not show much alteration in the periphery, but in the posterior pole they were much more changed. There was no perception of light; the tension was plus two.

The eye was excised, and on examination the choroid and sclerotic were found to be normal. The retina was thickened, and almost completely detached. There was much exudate, forming a mass occupying the sub-retinal space, and separating the retina from the choroid. The retina was specially thickened in the parts where exudation was seen. There was no cupping of the disc, but the nerve head was swollen, and the central vessels were dilated. A microscopical examination showed that the choroid was unaffected and that the process was localized in the retina, more especially in the external layers.

In some regions, apart from the thickening, the retina presented its normal structure, in others there had been destruction of the pigmentary layers, the layer of rods and cones and the external granular layer; in other regions all the layers of the retina were affected.

The retinal vessels showed infiltration and dilations, but the author did not find any true vascular aneurysms. The sub-retinal exudate was homogeneous, but in it were spaces containing cholesterin crystals. A few other places had a granular aspect, and there were seen pale round cells with one or more nuclei, and with pale granular protoplasm, containing numerous small and pigmented granules; these were the "ghost cells" of Coats.

In the retina there were regions of necrosis, and others where there was connective tissue concentrated around the pigment cells, cholesterin and giant cells.

There were no haemorrhages observed in the retinal tissues, but much haemorrhage in the vitreous.

SURGERY AND GYNECOLOGY

Abstracts, Reviews and Comments from LeRoy Long Clinic
714 Medical Arts Building, Oklahoma City

Tumors of the Ovary. A Study of 1,101 Cases of Operations for Ovarian Tumor. By Phineas Bernstein, New York. American Journal of Obstetrics and Gynecology, December, 1936, Page 1023.

This is a very detailed report made from the material at the Mount Sinai Hospital during the period from 1924 to 1935. The following conclusions well summarize the extensive statistical information in the body of the article:

"1. A single complete analysis of clinical and pathologic date from a large number of ovarian tumor operations is warranted, since no such report appears in the literature. The facts, of interest to the surgeon and clinician, justify publication.

2. FREQUENCY: The simple and dermoid cysts are first and second in order of incidence. Papillary serous cancer occupies a position of hitherto unreported high frequency, namely third; it constitutes eighty per cent of all ovarian cancers, and is four times more frequent than its benign form. It is fourteen times more frequent than the pseudomucinous cancer of the ovary.

"3. MALIGNANCY INCIDENCE: 17.3 per cent of all ovarian tumors are malignant; ninety-five per cent of these are cancer and five per cent sarcoma.

"4. AGE INCIDENCE: Fifty-eight per cent of all ovarian tumors are in patients between twenty and forty years; thirty per cent are over forty years and twelve per cent under twenty years.

"Sixty-seven per cent of cancer and seventy per cent of sarcoma were in women over forty years; twenty-two per cent of cancer was in patients between twenty and thirty years. Sixty per cent of benign serous tumors are in patients over forty years.

"The fourth decade contains thirty-one per cent of ovarian tumors, the third decade twenty-seven per cent and the fifth decade nineteen per cent. Simple cysts predominate in all three decades.

"5. MARITAL STATUS AND PARITY: Seventy-five per cent of tumors of the ovary are found in married patients; eighty-one per cent are benign and nineteen per cent malignant; forty-three per cent of married women with ovarian growths were parous; thirty per cent of malignant tumors were in parous women.

"6. MENSES: Normal menses occur in 54.3 per cent of patients with ovarian tumors; hyperfunctional bleeding in 26.5 per cent and hypofunctional bleeding in 17.9 per cent.

"In view of the present knowledge with regard to the ovarian effect on menstruation, the high incidence of normal menses is notable.

"Eleven per cent metrorrhagia, 12.3 per cent menorrhagia, and 3.3 per cent menometrorrhagia; and 12.3 per cent menopause, three per cent secondary amenorrhea, and two per cent oligomenorrhea, are the figures obtained

"In fifty-eight per cent of menopause patients malignancies were found. Thus a climacteric patient with an ovarian tumor has a fifty-eight per cent possibility for cancer. Eighty per cent of all malignancy occurs in menopause women.

"7. DYSMENORRHEA: The incidence of this symptom was only fifteen per cent.

"8. METASTASES are noted at operation in seventy-six per cent of ovarian cancer patients; eighty per cent of these are due to papillary serous cystadeno-carcinoma. The insidious character of an ovarian malignancy is indicated by this figure, as well as the difficulty in an early diagnosis.

"Twenty-six per cent of metastases are found in the gastro-intestinal and peritoneal systems. The gynecologic tract and omentum contain sixteen per cent and eleven per cent, respectively. Lymphatics, genito-urinary and respiratory systems, and various organs are found to have the remainder of foci.

"Ascites incidence is fifty-four per cent in malignancy; ninety-five per cent of this finding is caused by papillary serous cystadenocarcinoma; seventy-one per cent have clear fluid, twenty-two per cent bloody, and seven per cent purulent fluid.

"9. SYMPTOMS: Pain constitutes forty-four per cent of all symptoms; seventy-five per cent of ovarian tumor patients have this complaint. It is not usually severe even in the late stages of carcinoma of the ovary, and is twenty-five per cent more frequent among the benign tumor cases.

"Gastro-intestinal symptoms, principally nausea and vomiting, constitute only nineteen per cent of complaints; eighty per cent of these occur among the benign tumor patients; eighty-eight per cent of intestinal obstruction is produced by cancer.

"Sixteen per cent of all symptoms and signs, totaling 1,814, are represented by abdominal manifestations; seventy-two per cent are in benign tumors. Twenty-one per cent of patients had an abdominal mass, thirty-five per cent of which was attributed to cancer.

"Respiratory symptoms are due only to the cancer metastases, and bladder complaints are caused by benign tumors in sixty-eight per cent of instances.

"Eighty per cent of all signs and symptoms are due to benign tumors.

"10. SITE OF PAIN AND TUMORS: Seventy per cent of pain was in either the right, left, or bilateral lower quadrants; eighteen per cent was bilateral, the remainder was divided equally among the right and left lower quadants. Twenty-one per cent of tumors are bilateral, forty-four per cent right and thirty-five per cent left; fifty-five per cent of malignant tumors are bilateral.

"Thus, sixty-one per cent of right side and seventy per cent of left side tumors cause homolateral pain, while eighty per cent of bilateral tumors cause bilateral pain.

"11. SEDIMENTATION TIME: The significance of this test is stressed in inflammatory, degenerative, and infective processes."

COMMENTS: Statistical studies are frequently not interesting reading and are apt many times to be misleading, but the report on this large group of ovarian tumors contains much valuable information for the individual who carefully studies it.

Wendell Long.

Ovarian Rupture Causing Intraperitoneal Hemorrhage. Report of Ten Cases. By S. Leon Israle, Philadelphia, Pa. The American Journal of Obstetrics and Gynecology, January, 1937, Page 30.

Perforation of the corpus luteum is by far the more common lesion as a cause of intra-peritoneal hemorrhage from rupture of the ovary than is rupture of the graafian follicle. The amount of free blood found in the peritoneal cavity after ovarian rupture may vary from one-half ounce to several liters. Frank bleeding is usually encountered from a richly vascularized perforated corpus luteum, whereas only serosanginous fluid is found in perforations of graafian follicle.

Ovarian rupture with intra-peritoneal hemorrhage occurs in the child bearing period, more often in young women. There is a characteristic relationship between the time of ovarian rupture and the menstrual cycle. Graafian follicular rupture occurs practically mid-interval and corpus luteum rupture during the last half of the cycle. "The time of corpus luteum rupture seems to be fairly constant, as illustrated by the fact that all ten of the corpus luteum perforations presented below occurred during the premenstruum. This inherently functional relationship to the ovarian cycle is an important diagnostic feature and serves to distinguish between follicular and corpus luteum rupture."

The most prominent symtom is abdominal pain of sudden onset and variable intensity, more often localized in the right lower abdomen. Nausea and vomiting are frequent accompaniments and shock may be seen in fulminating cases. There is usually a moderate elevation of temperature and polymorphonuclear leukocytosis. There is tenderness on palpation of the iliac fossa and bimanual examination may delineate the ovarian hematoma as a soft, tender adnexal tumor.

The differential diagnosis lies principally between acute appendicitis and ectopic pregnancy. The proper diagnosis rests to a large degree upon a proper knowledge of the condition and an ever present suspicion of its existence. The time interval in the menstrual cycle together with this suspicion in every young woman who has acute lower abdominal pain, will do much to correct erroneous diagnoses.

Since it simulates appendicitis closely, if reason-

able doubt exists following an exhaustive differential analysis, diagnosis of appendicitis should be favored and mid-line laparotomy performed.

In differentiation from ectopic pregnancy the points of principal importance are the menstrual history of the patient and the location of the onset in the menstrual cycle of the individual.

The treatment is well summarized in the following brief quotation:

"If appendicitis or ectopic pregnancy can be definitely excluded from the diagnosis, non-operative treatment may be applicable in many instances of ovarian hemorrhage (Pratt). In order to obviate the possibility of erroneous diagnosis, careful observation is the sine qua non of non-operative therapy. Thus, if there is any doubt concerninng the existence of a more serious lesion (appendicitis or ectopic pregnancy), laparotomy is indicated."

"The patients exhibiting signs of marked hemorrhage require immediate operation. Whenever possible, the bleeding ovary should be conserved. The simplest procedure is to strip the hematoma cavity of its lining and approximate its walls with a fine catgut suture"

Ten cases of corpus luteum rupture with intraperitoneal hemorrhage are reported.

COMMENTS: This is a far more common condition than it is generally considered to be.

I am sure that there are many mild cases and that in these the condition spontaneously corrects itself with no major residual defect in the ovary. About two years ago I remember seeing three young women within one week's time upon which this diagnosis was made because of premenstrual pain in the right lower abdomen, slight elevation of temperature and slight temporary elevation of polymorphonuclear leukocytes. All were watched carefully to be certain that they did not have appendicitis and in all instances the pain gradually disappeared, next expected menstruation was slightly delayed and though they have all been seen during the past three years, none have developed subsequent symptomatology of this character.

This manner of treatment, of course, is not justified if there is doubt as to the existence of appendicitis or ectopic pregnancy. Nor is it justifiable when the patient is in any degree of shock. However, very careful history and physical examination, together with the suspicion of this condition, will many times spare a patient unnecessary surgical interference in the mild instances of this pathology.

On the other hand there may be profuse hemorrhage as in a young married woman of twenty operated upon by me in May, 1935. She had acute lower abdominal pain premenstrually, slight pain in both shoulder regions, particularly the right, nausea, and moderate shock. At operation there was between five hundred and six hundred cc. of free blood in the pelvis, coming from a rent in a right ovarian corpus luteal cyst. The ovary was removed. One and one-half years later patient had been without symptoms and was in excellent health.

A third point of discussion is the frequency of this condition in association with other pelvic pathology. It is a not uncommon circumstance at operation for fibroid tumors and various pathology of the adnexa to find blood in the peritoneal cavity and one or more corpus luteal cysts with small ruptures in the ovaries. Microscopic examination has confirmed this opinion repeatedly. These various instances of rupture of the corpus luteum with hemorrhage demonstrate beyond question that it is a common condition and that it should be extremely carefully considered in a differential diagnosis where there is pain in the lower abdomen, particularly if that pain occurred premenstrually.

Wendell Long.

Studies of the Optimal Dosage of Estrogens. An Experimental and Clinical Evaluation. By Charles Mazer and S. Leon Israel. The Journal of the American Medical Association, January 16, 1937, Page 163.

There is a brief review of the physiological effects of estrogen in the experimental animal. However, the purpose of this work is an attempt to determine the optimal dosage.

The method employed to determine the rate of absorption and excretion of estrogen entailed the use of forty-two hospital patients convalescing from various pelvic operations which included removal of both ovaries.

"It was therefore assumed that the minimum quantity of estrogen capable of producing and maintaining in the blood and urine of the castrate a concentration of the substance comparable to that current during the premenstrual phase of regularly menstruating women would be an ideal substitution dose in patients with deficiencies of estrogen."

They utilized the accepted normal premenstrual ratio of one mouse unit of the active hormone in forty cc of blood and fifteen rat units in twenty-four hour output of urine. In this study there was daily extraction of the entire output of urine with intermittent blood studies which were essentially corroborative of the urinary changes.

"In order to determine the proper interval for hypodermic use of estrogen, a single dose of from one thousand to ten thousand rat units was given to twelve surgically castrated women and the entire output of urine was extracted daily for a period of five days. Discounting slight individual variations, a perusal of Table 1 shows that the hypodermic administration of a single dose of one thousand rat units of theelin or estradiol benzoate in oil maintains a normal level of estrogen in the blood, as reflected by the amount excreted in the urine, for a period of four days. Larger doses of from five thousand to ten thousand rat units produce a temporary hyperestrinemia, which invariably reaches the normal premenstrual level on the fourth or fifth day."

"The rate of excretion is so proportionate with the dose administered that all the demonstrable estrogen is eliminated by the fifth day, irrespective of the size of the dose."

Observations on the administration of the daily hypodermic dose of estrogen show that even five hundred rat units daily produces an abnormally high concentration in the blood, as reflected by the amount excreted by the urine daily.

"Data relative to oral dosage to supplant the better known hypodermic variants are urgently needed. To that end, twenty-one surgically castrated women were given estrogens orally in doses of from two hundred to six thousand rat units daily in the form of an oily solution on buttered bread. From the data recorded in Tables 2 and 4, it is apparent that estrogens are readily absorbed from the human gastro-intestinal tract. The degree of absorption, as reflected in the blood and urine levels of the principle, varies considerably with the product and the amount administered."

"A careful analysis of Table 4 shows that the minimum daily oral dose of either theelin or estradiol capable of maintaining a premenstrual level in the blood of the castrated woman is approximately five hundred rat units and that the claim of the greater absorbability of estriol when administered orally is not supported by this study."

Analysis of the figures shows that hypodermic administration of estrogen in the human being is only twice as effective as the oral route when judged by the rate of absorption and excretion.

Clinical uses of estrogen are discussed. In this discussion there are several interesting points.

Their view upon the use of large doses and also upon gradual withdrawal in the severe menopausal syndrome is well summarized in the following paragraph:

"Only large doses, quantities producing a definite hyperestrinemia, are effective in inhibiting the hyperfunctional state of the anterior pituitary lobe current in this condition As emphasized by us and corroborated by Albright and Frank, amelioration of the symptoms is concomitant with a definite decrease in production of the gonadotropic factor of the hypophysis. Our best results were obtained with the use of ten thousand rat units of estradiol benzoate given hypodermically every fourth day until the major symptoms had subsided. Withdrawal of treatment at this juncture almost invariably resulted in recurrence of the symptoms. We have therefore continued treatment with gradually reduced doses for a period of from four to six months, in order to accustom the economy to function on minimal doses or on none at all."

They discuss the effect on the alveolar type of abnormal breast hyperplasia giving instances of observations over a rather long period on women treated for nipple bleeding and multiple nodules in the breast (see comment).

They have treated ninety-three children with gonococcic vulvovaginitis. Their conclusion: "It seems that the optimal dose and length of treatment of gonorrheal vulvoginitis is one thousand or more rat units given hypodermically every other day for a period of not less than eight weeks." Where dosage was less in amount or duration less in time, recurrences were frequently found.

COMMENTS: In a field where stabilization is badly needed, studies such as this upon the quantitative rate of absorption and excretion are extremely valuable and when added together give us a much more logical plan of attack where estrogens are clinically indicated. Quite interesting in this work is the ratio between the hypodermic and the oral dosages of estrogen at one to two.

In the discussion of treatment of "nipple bleeding" by estrogenic substances, the authors have used several quotations which would give the inference that carcimona is to be lightly considered in this condition. The statistical information which they have omitted is far more important, that is that fifty per cent of patients with nipple bleeding have carcinoma of the breast at the time. Therefore, in patients with bloody discharge from the nipple, with or without palpable nodules, the presumptive diagnosis must be carcinoma and the terrific risks of palliative treatment with estrogenic substances in these circumstances must certainly add to the responsibility of the physician who would treat such a patient with estrogenic substances over any considerable period of time.

It is also well to add that in the treatment of both gonococcic vulvovaginitis and senile atrophic vaginitis, the administration of estrogen by vaginal suppository is more effective than by the hypodermic method. Wendell Long.

Water Balance in Surgery. By Walter G. Maddock and Frederick A. Coller, Ann Arbor, Mich. The Journal of the American Medical Association, January 2, 1937, Page 1.

Water normally comprises sixty-five per cent of the total body weight and is fundamentally concerned with every physiological process. In surgical practice, because of disease or treatment, patients cannot take sufficient fluid by mouth to care for their needs. In these situations water must be given by the physician and it is the purpose of this study to determine the water requirements of six patients by figures based on facts rather than experience.

There follows a discussion of the nice adjustment of normal water exchange. The intake is derived from two principal sources: (1) Fluids drunk varying from about eight hundred to two thousand cc. daily and (2) water content of diet plus water of oxidation from body proteins, fats and carbohydrates for energy—estimated one thousand to one thousaand and five hundred grams of water daily.

In consideration of the excretory side, water lost in feces is relatively insignificant. The important water excretions are concerned with physiological processes: (1) The water of vaporization calculated at one thousand to one thousand and five hundred grams daily, and (2) the water of urine. "There is no mechanism whereby, when the water supply is low, temperature can be kept within normal limits with use of less water than usual. The vaporizing process may be regarded as having 'preferential rights' on available water over that of the kidneys." The kidneys are markedly affected by the available water, excreting the waste materials with the water left after the other processes have been completed. "On this basis a good fluid intake is shown by a good urine output and a small urine volume of high specific gravity practically always means insufficient water."

Dehydration attendant on surgical operation was studied in a group of eighteen patients. There was a usual decrease in the supply of available water due to the low intake of fluids and food. The water exchange was also disturbed by frequent abnormal fluid losses. The greatest fluid output during the operative and four hour post-operative period was generally vaporization loss. "This made up seven hundred cc. of the average one thousand cc. lost by blood, vomitus, urine and vaporization during this time." It was in this study that the authors observed the great increase of vaporization loss by the sweating in a post-operative "ether bed." Since that time they have only warmed the average bed with hot water bottles.

The daily water losses of surgical patients was determined by transferring the patient to a Bradford frame and weighing at a given hour each day and also weighing all of the ingesta and excreta for the period. "Water vaporized varied from one thousand and five hundred to two thousand and five hundred cc. daily. In general, for the sick surgical patients water for vaporization can be safely estimated at two liters a day."

The water needed for urine varies somewhat with the amount of waste material to be excreted and the condition of the kidney. The average individual with normal kidneys needs to excrete five hundred cc. of urine for normal function. "For the sick surgical patient we believe this to mean an output of at least one thousand and five hundred cc. of urine daily."

Frequently abnormal losses of fluid, such as

vomitus, must be considered in the water exchange.

Fluid taken by mouth can be deducted from the above estimated three thousand and five hundred cc. total daily intake necessary.

In order to determine quantitatively the degree of dehydration possible in the "dehydrated patient," two normal subjects were fed a dry maintenance diet for a number of days until they developed all of the cardinal symptoms of dehydration. "The water balance data of both subjects showed that the signs of serious dehydration produced were the results of being depleted of an amount of water equal to approximately six per cent of their body weight." "This means three thousand and six hundred cc. of water for a patient of one hundred and thirty-two pounds weight."

When water was given to their experimental subjects the urine did not immediately increase but was apparently used for internal chemistry and vaporization.

The authors, therefore, give as the water requirements in dehydration in a dehydrated patient weighing one hundred and thirty-two pounds, (1) water for vaporization, 2,000 cc., (2) water for urine, 1,500 cc., (3) abnormal loss if any during the twenty-four hours, and (4) water to restore depleted fluids (six per cent of one hundred and thirty-two pounds) 3,600 cc, with a total of 7,100 cc.

As to the nature of the parenteral fluids, they feel that the administration of the necessary water is the prime consideration. They think that dextrose should be given to all patients requiring fluids parenterially because it is an ideal fuel for energy, relieves ketosis and protects the liver.

In using large quantities of fluids over a period of time they feel that there is harm to be done by the indiscriminate use of saline solution where the saline is not given directly to replace depletion associated with loss from gastro-intestinal tract. They found that patients given dextrose in physiological solution of sodium chloride gained weight and some of them developed oedema of the low back and ankles, but with the cessation of the sodium chloride and the administration of glucose in distilled water the oedema disappeared.

In situations where there has been vomiting and there is need for replacement of the chloride, they have found it advantageous to administer the glucose in Ringer's solution in preference to physiological solutions of sodium chloride.

Where there is no loss of gastro-intestinal contents, it is their feeling that most patients do not need the sodium chloride and that the dextrose may be given in distilled water.

COMMENTS: Water balance in surgical patients is an extremely important subject. This study, which attempts to give a quantitative basis for the administration of fluid parenterally, is of value in first demonstrating the pronounced need for such replacement, secondly in reenforcing the clinical observations in the care of the sick surgical patients by the admittedly quantitative need for their various functions and, thirdly, in establishing definite basic plans for the administration of fluid in the various circumstances which arise in the care of surgical patients. Wendell Long.

Tumor of the Neck and of the Anterior Mediastinum Originating from the Sympathetic (Ganglio-neuroma). (Tumeur du Cou et du Mediastin Anterieur de Provenance Sympathique (Ganglioneurome). By Wladyslaw Dobrzaniecki and Stanislaw Stankiewicz. Journal of Chirurgie, Paris, December, 1936.

Referring to the lack of definite knowledge about the histo-pathology, the grouping and the classification of tumors arising from the sympathetic nervous system, the authors direct attention to the fact that benign tumors, designated by them "ganglio-neuromas," may have such an origin. This is considered important because one is predisposed to think of the malignant tumors, like sarcomas or lymphosarcomas, growing from connected tissues in the same localities.

The statement is made that the benign ganglioneuromas are characterized by the presence in them of both young and adult ganglionic cells, showing different stages of maturity.

The ganglio-neuromas may develop in the central nervous system and in the peripheral sympathetic. They most often appear as isolated tumors, sometimes encapsulated, and arising from the cervical, thoracic, or lumbar sympathetic. They may be found in the coeliac plexus, the mesentery and in the supra-renal plexus where they are known as paragangliomas.

The most typical localization of the ganglioneuromas is in the paravertebral and retro-pleural space a little below the summit of the lungs. However, they are found in other localities, as indicated.

From the clinical point of view, one must not forget that these tumors may be of hour-glass shape, the larger part being found in the paravertebral space and the smaller part in the spinal canal, the two parts being connected by a stem that passes through an intervertebral foramen. In such a case there are cord symptoms.

There is a report of the case of a patient upon whom the authors preformed a surgical operation, the findings apparently stimulating them to make an investigation of the subject, and furnishing a foundation for this report by them.

The patient was a male child of two years. Before being seen by the authors, there had been cyanosis and dyspnoea, for the relief of which a tracheotomy was done. Later, he was brought to hospital and observed about two weeks during which time there were attacks of dyspnoea and cyanosis, the tracheotomy tube still being in place. There was a small, firmly elastic, smooth mass just above the right clavicle, it disappearing behind the clavicle. There was an irregular x-ray shadow. There was a paradoxical right diaphragm shadow, indicating paralysis of the right phrenic nerve. There were, also, pupillary evidences of altered sympathetic function. The diagnosis was tumor of the neck and of the anterior mediastinum ("tumeur du cou et du mediastin anterieur").

Operation was done under truncular anesthesia of the cervical plexus (anesthesie tronculaire du plexus cervical). The incision was like that for a hemithyroidectomy. The great vessels of the neck were behind and within the tumor. In removing it, the right pneumogastric nerve was sectioned. After the removal of the tumor there was immediate disappearance of dyspnoea and cyanosis.

Three days later there was hemorrhage by way of the tracheotomy canula, and death ensued. Autopsy showed that the hemorrhage was from a small ulceration of the trachea, apparently produced by trauma from the canula.

Microscopic examination revealed the typical structure of a ganglio-neuroma.

The authors indicate that the localization of a ganglio-neuroma in the anterior mediastinum is rare. The conclusion is that it developed in the paravertebral, or retropleural space, and found its way into the anterior mediastinum, its increasing weight probably having something to do with the direction in which it migrated.

It is remarked that the pupillary changes might be due to pressure by a retro-displaced trachea, and it is remarked, also, that paralysis of the phrenic nerve, bringing about paradoxical movements of the diaphragm, is not common.

When these tumors develop in the thoracic region they might be confused with tuberculous spondylitis, with paraplegia. They might, also, be confused with encapsulated pleurisy or a pulmonary tuberculosis. Ganglio-neuromas developing in the lumbar region, as well as in the lower thoracic region, are frequently accompanied by nausea and other evidences of disturbance of the functions of the abdominal organs.

The treatment is surgical. While in some cases, the operation is difficult, it may be comparatively easy in other cases, because a ganglio-neuroma is frequently encapsulated. LeRoy Long.

PLASTIC SURGERY

Edited by

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Osteomyelitis of the Bones of the Hand. Sumner L. Koch, M.D., F.A.C.S., Chicago. Surgery, Gynecology and Obstetrics, January, 1937.

Dr. Koch quotes from D. McCrae Aitkin's little volume entitled "Hugh Owen Thomas: His Principles and Practice," the details of a case of particular interest:

"Case No. 1. Capt. J. William J. Jenson, May 11th, came under treatment. Caries of metacarpal bone of index finger.

"When I first saw him he was pale in appearance—night sweats—the wound appeared bloody, but the granulations were pale and the edges of the wound flabby. The history he gave of his own case was that he pricked his finger, which, from neglect, became inflamed, suppurated, etc. His medical attendant removed the third and second phalanges. Afterwards the first became carious, and his medical attendant advised its removal; before doing so, my patient, the captain, consulted the Staff of the Royal Infirmary, Liverpool, and they advised the removal of the index metacarpal of the right hand.

"At this stage he consulted us, E. and H. (Evan, the father, and Hugh, the son), and we gave it as our opinion that the above operation was not needed."

Aitkin continues:

The reasons are annexed: The bone could not be removed without cutting into the wrist, and last, the former operations had failed, how could he tell that this would not also fail. On May 11th the patient came under Hugh Owen Thomas, who dressed the wound, but strapped the wrist and hand firmly. On June 15th all was healed, and then there is a final note, "Well at Rio Janeiro, November 20/57."

Dr. Koch gives further emphasis to the conservative treatment of similar cases. He states that the principle recognized by Thomas so early in his career, is often ignored and often forgotten. It is of especial importance in connection with osteomyelitis of the bones of the hand, for nowhere is the bony framework of more importance for normal function. Nowhere is osteomyelitis secondary to infection of the overlying soft parts more common.

The latter consideration is of significance. Osteomyelitis of the bones of the hand and wrist, except when secondary to tuberculous or syphilitic infection, is invariably due to infection by continuity with the covering tissues or the result of compound injuries with primary or secondary infection of the bone. The destruction of bone that takes place might be compared with the erosive action of a turbulent stream of water upon a wall of rock.

Essentials for successful treatment:

1. Adequate drainage of the soft parts.
2. Care to avoid adding secondary infection to that which is already present.
3. Care to avoid adding injury to that which has already occurred.

Not only is it often forgotten that such treatment is adequate, but a second fact frequently ignored—that unless actual sequestration has taken place one cannot determine by inspection, even in a bloodless field, where necrosis of bone ends, where the protective wall of inflammatory reaction begins and ends, and where normal bone begins. For some inexplicable reason that primary law of surgery, nihil nocere, is often forgotten by the surgeon when he reads the radiologist's report: "Periostitis, or beginning osteomyelitis, etc."

The surgeon who is confronted with an infected wound of the soft parts reasons correctly that he must not destroy viable tissue nor risk carrying infection more deeply and disseminating it more widely. Yet when confronted with a beginning infection of the covering or superficial tissue of the bone he often cuts ruthlessly with curette or chisel, and carries out a procedure which he would unreservedly condemn if the pathological process involved only the more superficial tissues. It is our belief that an infection of periosteum or underlying bone which is secondary to involvement of overlying soft tissues is pathologically identical with an infection of skin and subcutaneous tissues; and that the same principles of treatment should be applied: adequate drainage with a minimum of operative trauma, and aseptic care of the wound so as not to add secondary infection to that which is present. Adequate drainage, moreover, with infection of the anterior closed space of the distal phalanx does not necessitate the use of a fish mouth incision around the end of the finger, such as has been described in many text books of surgery and lately suggested again by Cotton and Morrison. He have never failed to secure adequate drainage through an incision made on one side of the finger alone; but we have been careful through this incision, under the vision possible with a bloodless field, to cut across the fibrous septa that run vertically from the skin to the periosteum of the distal phalanx, and so to make certain that no unopened pocket of pus was left undrained. On a number of occasions, moreover, we have had to excise the depressed gutter-like scar left after a fish mouth incision so as to secure a smooth and normally functioning finger tip.

If in the course of an infectious process involving the hand necrosis of any part of periosteum or bone takes place, the necrotic tissue will be extruded, just as necrotic skin or subcutaneous tissue slough away, or it can be lifted out of the open wound with very little difficulty. If one attempts, however, to determine the line of demarcation with chisel or bone biting forceps he invariably adds injury, destroys bone which might be saved, and delays the process of healing. These considerations hold true whether the area of bone infection involved the articular surfaces of both bones forming a metacarpophalangeal or an interphalangeal joint.

Case reports might be multiplied indefinitely.

Suffice it to say that for a number of years and with a considerable number of cases under our observation we have not once found it necessary to amputate a finger or a part of a finger because of osteomyelitis. The most striking group of cases we have observed has been that in which infection followed a bite or a fist fight. In spite of the well known virulence of such cases a mixed infection with many types of organisms is invariably present, these patients when treated conservatively have all recovered.

SUMMARY: The essential factors in the treatment of osteomyelitis of the bones of the hand are adequate drainage of the overlying soft parts, cleanly surgical care, and avoidance of trauma—by irritating chemicals, by addition of infection from without, and, particularly, by the use of curette and chisel. If death of bone takes place a line of demarcation forms and the necrotic bone, if it is not extruded spontaneously, can be removed without trauma. To attempt to determine a line of demarcation by surgical intervention too frequently results in destruction of living bone and extension of infection, and often makes recovery of the affected bone impossible.

COMMENT: Everyone interested in surgery of the hand should read Dr. Koch's article. Being an excellent teacher enables Dr. Koch to clearly point out the essentials of treatment so that everyone can understand them.

The same principles of care are employed in cases of osteomyelitis of the bones of the skull and face.

I have been able to avoid amputation in cases of osteomyelitis of fingers and hands by conservative treatment. The restlessness on the part of the patient, or his employer, often helps the surgeon to resort to amputation. Some cases will consume five to six months time for a complete recovery, however, this seems better than the loss of a finger or hand. Geo. H. Kimball.

INTERNAL MEDICINE

Edited by C. E. Bradley, M.D., Medical Arts Building, Tulsa; Hugh Jeter, M.D., 1200 North Walker, Oklahoma City

PROGRESS OF MEDICAL SCIENCE

Medicine Under the Charge of John A. Musser, Professor of Medicine, Tulane University of Louisiana, New Orleans. Heart Disease in Pregnancy.

In this the author gives some very practical points in connection with the problem of heart disease in pregnancy. Pathognomonic evidences of heart disease are given as follows:

1. Definite cardiac enlargement. That this finding must be used with caution has already been discussed.

2. Serious mechanismal disturbances, such as true pulsus alternans, heart block not due to digitalis, auricular flutter, and auricular fibrillation.

3. Definite thrills which are unmistakably cardiac. A slight vibration is insufficient.

4. An unmistakable pericardial fricton rub.

5. Diastolic murmurs. Certain exceptions in pregnancy have already been mentioned.

6. Expansile pulsation of the liver.

7. Significant engorgement of the neck veins in the sitting position. While this findng may be due to the pressure of tumors and abnormal position of the diaphragm (again pregnancy may interfere), it is particularly significant if associated with enlargement of the liver and particularly an expansile pulsation of the liver.

8. Persistent arterial hypertension or widespread arteriosclerosis of long duration.

9. Typical classical angina pectoris. This finding is based on history alone and must be evaluated in that light.

There is interesting data in connection with the diagnosis as to functional capacity; the physiologic diagnosis, the anatomic diagnosis and the etiologic diagnosis are given. There is also a splendid discussion pertaining particularly to treatment.

Hugh Jeter.

The Gastric Juice in Patients with Pernicious Anemia in Induced Remission. By S. M. Goldhamer, M.D., Assistant Professor in Medicine, University of Michigan, Ann Arbor, Michigan. (From the Thomas Henry Simpson Memorial Institute for Medical Research, University of Michigan.) The American Journal of the Medical Sciences, Vol. 193, No. 1, January, 1937.

In this the author as a result of interesting observations in connection with the gastric juice in pernicious anemia patients, reports his findings.

He concludes that (1) the volume of gastric juice in patients with pernicious anemia in induced remission is reduced, although exceptionally it may reach the normal range

2. The average gastric juice volume in normal subjects is 150 cc. per hour; 20 cc. in pernicious anemia in relapse and 46 cc. in pernicious anemia in induced remission.

3. No "free" hydrochloric acid was found in the gastric juice of the twenty-seven patients with pernicious anemia in induced remission.

4. The amount of gastric secretion appeared to be related to the age of the individual, averaging 63 cc in per hour in the younger and 31 cc. per hour in the older subjects.

5. The "intrinsic factor" is present in the combined gastric juice of patients with pernicious anemia in induced remission. Hugh Jeter.

Studies in Diabetes Mellitus. V. Heredity. By Elliott P. Joslin, M.D., Clinical Professor of Medicine, Harvard Medical School, Medical Director of the George F. Baker Clinic, New England Deaconess Hospital, Boston, Mass., Louis I. Dublin, Ph.D., Third Vice-President and Statistician, Metropolitan Life Insurance Company, and Herbert H. Marks, New York City. The American Journal of the Medical Sciences, Vol. 193, No. 1, January, 1937.

In this the authors have discussed the heredity as an etiological factor in diabetes mellitus and emphasize several important phases of this study. It is interesting to note that they referred to the constitution implying that one may be capable of transmitting diabetes, but show no clinical evidence and give no positive history of the disease. This type of individual is referred to as a "carrier."

Reasons for failure to identify "carriers" are as follows: (1) Cases of diabetes in the family which do not develop characteristic symptoms and consequently are never diagnosed; (2) cases which develop symptoms but escape diagnosis; (3) cases which are diagnosed but are not specified in the patient's record because he does not know this feature of his family history; (4) cases that fail to be identified because the "carrier" in the family did not survive to the age at which diabetes would ordinarily manifest itself; (5) cases in which the potential "carrier," still living, has not yet, but will later, become diabetic; (6) cases where the "car-

rier" dies without issue; and (7) cases which have developed since the original examination of the patient, but are not known because direct contact with the patient has ceased.

One thousand five hundred and fifty-nine cases who reported one or more diabetics in their family have been studied. Several interesting charts are given. One chart includes the incidence of diabetes in the families of diabetics as reported by twelve investigators in addition to the authors of this article.

Twenty-four and five-tenths per cent of the patients in the series reported gave a positive family history. Higher percentages were found in special groups, such as women over men; living children under observation as compared with children who died; in physicians as compared with other patients; in Jewish patients as compared with non-Jewish and in similar compared with dissimilar twins. The percentages of diabetic patients with a positive family history of diabetes are far higher than those for non-diabetic control groups.

They concluded that the predisposition to diabetes seems to be inherited as a Mendelian recessive character. Hugh Jeter.

"Stone Walls Do Not a Prison Make Nor Iron Bars a Cage"

Winter is a jailer who shuts us all in from the fullest vitamin D value of sunlight. The baby becomes virtually a prisoner, in several senses: First of all, meteorologic observations prove that winter sunshine in most sections of the country averages ten to fifty per cent less than summer sunshine. Secondly, the quality of the available sunshine is inferior due to the shorter distance of the sun from the earth altering the angle of the sun's rays. Again, the hour of the day has important bearing: At 8:30 a. m. there is an average loss of over thirty-one per cent, and at 3:30 p. m., over twenty-one per cent.

Furthermore, at this season, the mother is likely to bundle her baby to keep it warm, shutting out the sun from baby's skin; and in turning the carriage away from the wind, she may also turn the child's face away from the sun.

Moreover, as Dr. Alfred F. Hess has pointed out, "it has never been determined whether the skin of individuals varies in its content of ergosterol" (synthesized by the sun's rays into vitamin D) "or, again, whether this factor is equally distributed throughout the surface of the body."

While neither Mead's Oleum Percomorphum nor Mead's Cod Liver Oil Fortified With Percomorph Liver Oil constitutes a substitute for sunshine, they do offer an effective, controllable supplement especially important because the only natural foodstuff that contains appreciable quantities of vitamin D is egg-yolk. Unlike winter sunshine, the vitamin D value of Mead's antiricketic products does not vary from day to day or from hour to hour.

Muskogee Academy of Medicine Meets in February

The Muskogee Academy of Medicine announces its fifth annual meeting which will be held at Muskogee, Oklahoma, on February 18 and 19, 1937, at the Severs Hotel. Guest speakers are Dr. Harry Wilkins, Oklahoma City, Oklahoma, brain surgery; Dr A. I. Folsom, Dallas, Texas, urology; Dr. Henry M. Winans, Dallas, Texas, internal medicine; Dr. E. C. Hamblen, Durham, N. C., obstetrics and gynecology; Dr. L. W. Dean, St. Louis, Mo., oto-laryngology; Dr. Paul S. Carley, U. S. P. H. S., syphilology.

The members of the American Medical Association and members of the daughter branches of the American Medical Association are cordially invited to attend this meeting. No admission will be charged.

Neuropsychiatry in General Practice

The medical staff of the Menninger Clinic will conduct its third annual post-graduate course on "Neuropsychiatry in General Practice," April 19 to 24, inclusive, at the Menninger Clinic, Topeka, Kansas. The course this year will include a brief introduction to the fields of neurology and psychiatry and a specific application of this knowledge to the large group of cases of psychoneuroses, psychoses and psychogenic and neurological disorders which every physician meets in his daily practice. Suggestions made by those who took the course last year have been embodied in this year's program, in order to make it applicable to the most common practical problems of the physician.

As in previous years, several guest speakers, prominent in the fields of neurology and psychiatry, will appear at the evening sessions of the course.

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